

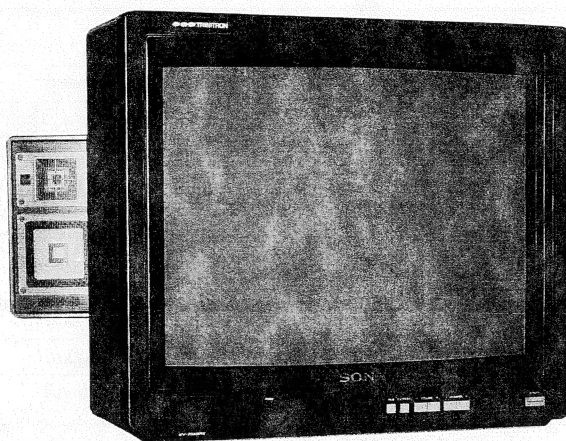
KV-20XBRII

RM-724/APM-X4

SERVICE MANUAL

Canadian Model

Chassis No. SCC-607D-A



January, 1987

P2B CHASSIS

Note: The service manuals for RM-724 and APM-X4 have been issued separately.

SPECIFICATIONS

Television system	American TV standards	Video/audio outputs	TV OUT (AV phono jack)
Channel coverage	VHF: 2-13 UHF: 14-69 Cable TV: 1-125		Video: 1 Vp-p, 75 ohms unbalanced, sync negative
Picture tube	Microblack Trinitron 20-inch picture measured diagonally 21-inch picture tube measured diagonally 100-degree deflection		Audio: 408 mVrms (100% modulation, 5 kilohms)
Antenna	75-ohm external antenna terminal for VHF/UHF/CATV, AUX and TO CONVERTER		MONITOR OUTPUT (phono jacks) Video: 1 Vp-p, 75 ohms unbalanced, sync negative
Video/audio inputs	VIDEO 1, 3 INPUT (phono jacks) Video: 1 Vp-p, 75 ohms, unbalanced, sync negative Audio: 408 mVrms (100% modulation, 47 kilohms) VIDEO 2 IN AV (AV phono jack) Video: 1 Vp-p, 75 ohms, unbalanced, sync negative Audio: 408 mVrms (100% modulation, 47 kilohms)		Audio: 408 mVrms (100% modulation, 5 kilohms)
		RGB MULTI INPUT connector	PHONES (stereo minijack) Accepts 8-ohm headphones
		34-pin	SPEAKER terminals Accept 8-ohm speakers
		See the table on next page.	
		CONTROL IN/OUT jacks	
		Minijack, 5 Vp-p	
		Power requirements	
		120 V AC, 60 Hz	
		Power consumption	
		145 W (max.)	
		1.5 W (in standby condition)	

— Continued on next page —



TRINITRON® COLOR TV

SONY®



Dimensions 502 × 439 × 467 mm (w/h/d)
(19⁷/₈ × 17³/₈ × 18³/₈ inches)
without speakers
656 × 439 × 467 mm (w/h/d)
(25⁷/₈ × 17³/₈ × 18³/₈ inches)
including speakers

Weight (without speakers)
25 kg (55 lb 2 oz)

Accessories supplied
Side-mounting speakers with speaker
cords.....(1 pair)
Weight Approx. 1.9 kg (4 lb 3
oz) each
APM unit 55 cm² (8.5 in²)
Tweeter unit 20 mm (1³/₈ inches)
dia.
Remote Commander RM-724
with 2 size AA batteries..... (1)
Antenna connector
(300 ohm to 75 ohm matching
transformer).....(1)

Optional accessories
SU-173
Audio/Video connecting cables
U/V mixer EAC-66
RGB multi connector PX-34
Plug adaptor PC-33

RGB MULTI INPUT (34-pin)

Pin No.	Signal assignment
1	+5 V power supply
2	+5 V power supply
3	Audio (R) input ground
4	Ground
5	Remote control ground
6	Composite video output ground
7	Audio (L) input ground
8*, 9*, 10*	Ground
11	Ground
12*, 13*	Ground
15*	Ground
16	Ground
20	Audio (R) input
21	Mode select
23	Composite video output
24	Audio (L) input
25	Red input
26	Green input
27	Blue input
29*	Blanking input
30*	H. sync or composite sync
31*	V. sync
33	RGB/NORMAL mode select
34	Audio select
14, 17, 18, 19, 22, 28, 32	Not in use

* For No. 8 and 25, 9 and 26, 10 and 27, 12 and 29, 13 and 30, or 15 and 31 connections, use a twisted-pair lead.

Design and specifications subject to change without notice.


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WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.


SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

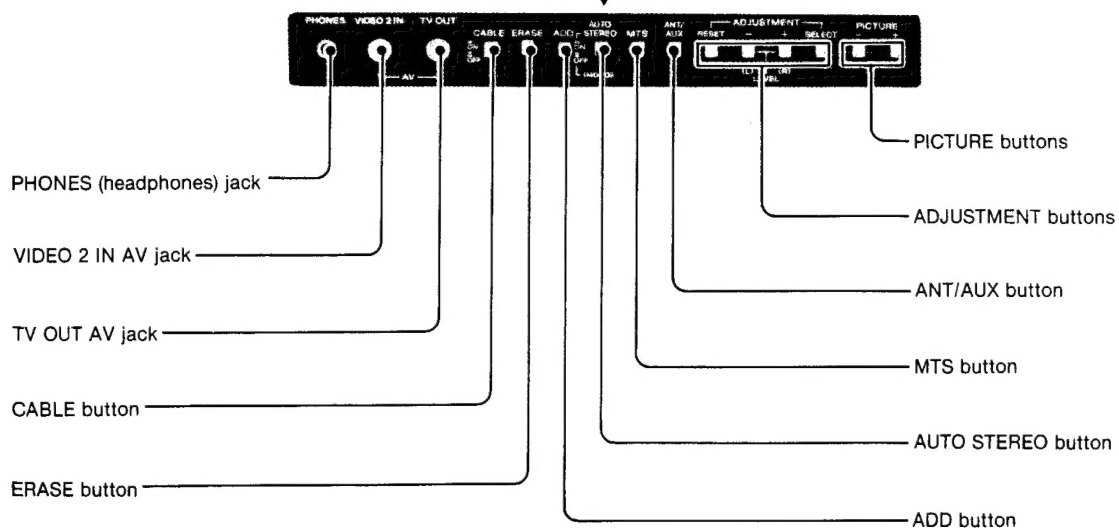
LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

1-1. LOCATION OF CONTROLS

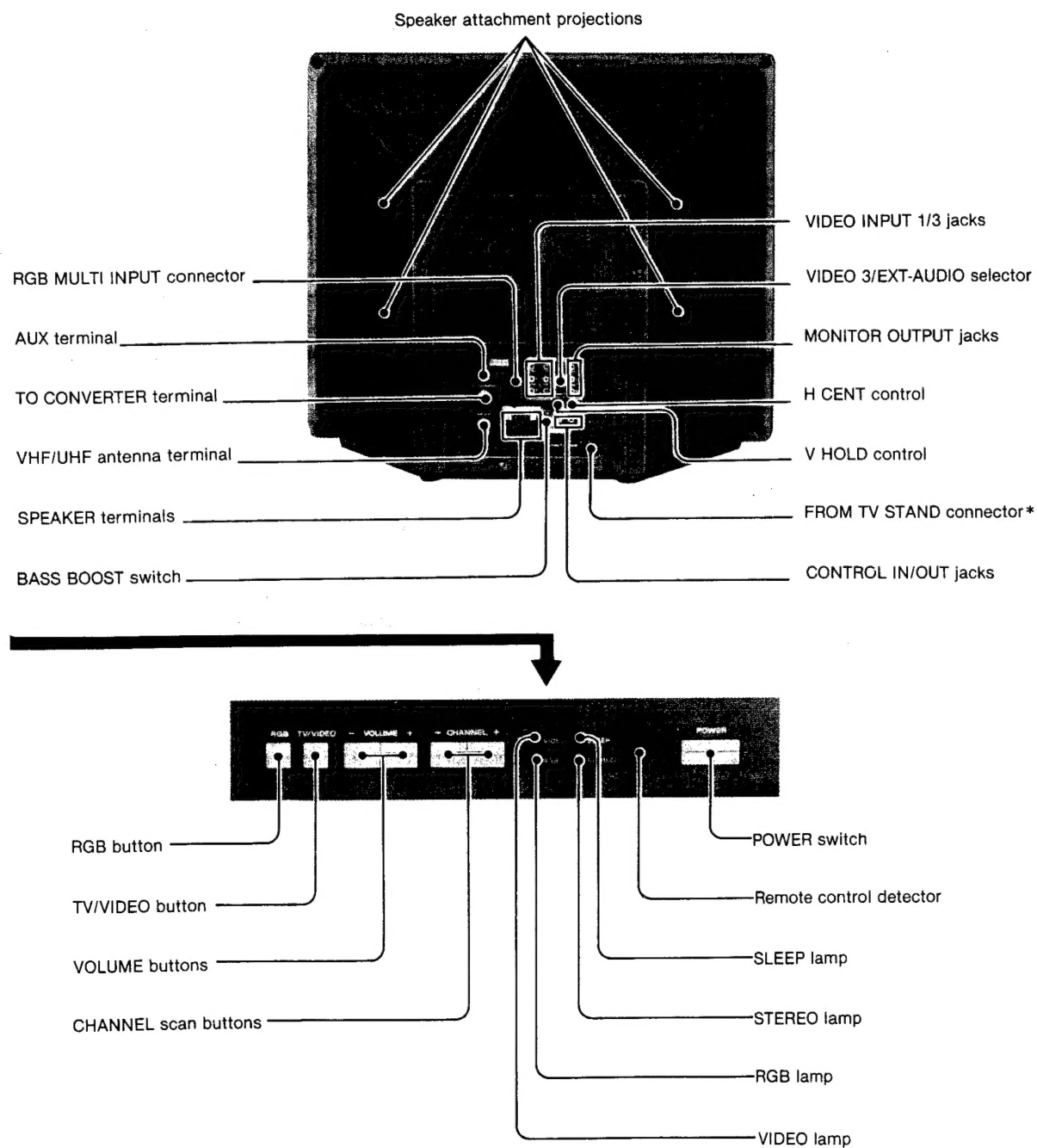
Front

- On-screen display indicates**
- channel numbers
 - "MUTING" mode
 - "SLEEP" mode
 - "MAIN", "SAP" or "BOTH" mode
 - "VIDEO 1", "VIDEO 2", "VIDEO 3", "EXT-A", "RGB" or "AUX" mode

- On-screen display indicates**
- picture or sound adjustment element and its level indicated by the segmented color bar
 - "TRINITONE" adjustment mode
 - "RESET" mode



Rear

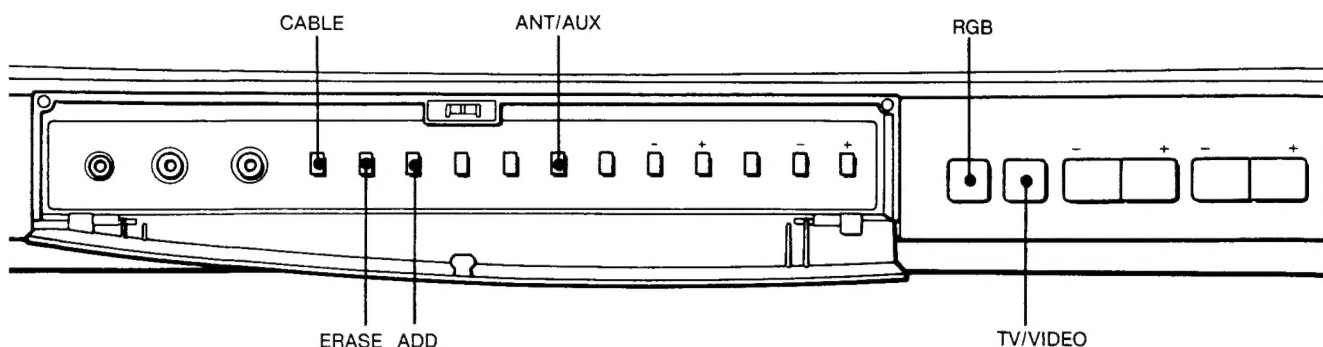


1-2. SET-UP

PROGRAMMING FAVORITE CHANNELS

The TV can be programmed so that when the CH +/- buttons are pressed, only locally available or favorite channels will be scanned, and unwanted channels will be skipped.

Some channels have already been programmed into the TV at the factory. Scan through the channels, and select the channels to be added and those to be erased.



PREPARATIONS

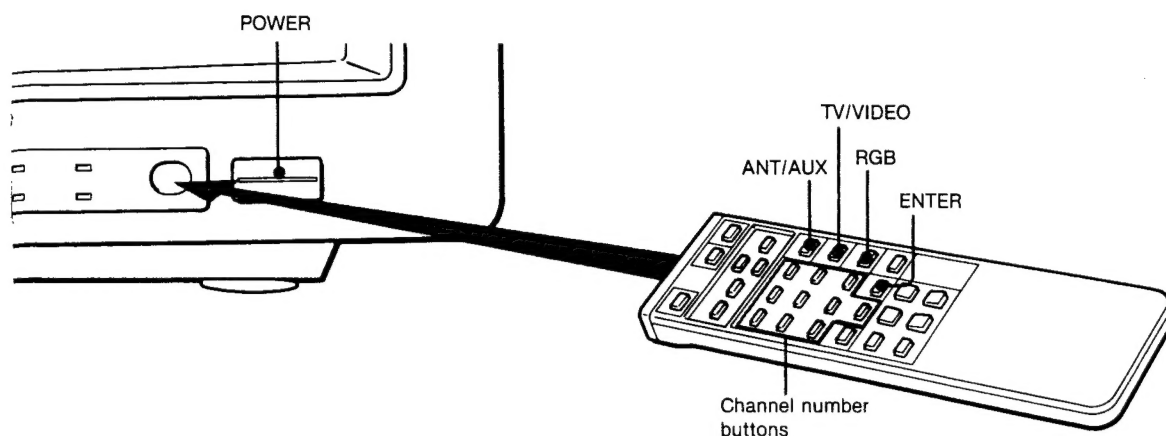
- 1 Press POWER to turn on the unit.
- 2 On-screen indications "VIDEO 1", "VIDEO 2", "VIDEO 3", "EXT-A" or "RGB" should be off. If not, press TV/VIDEO or RGB so that they disappear.
- 3 Set CABLE and ANT/AUX according to the channel to be added or erased.

Channel	CABLE button	ANT/AUX button
VHF	OFF	Press so that "AUX" disappears.
UHF		
Cable TV	ON	Press so that "AUX" appears.
Pay cable TV		

ADDING CHANNELS

- 1 Press channel number button(s) and then ENTER to select the channel to be added.
- 2 Press ADD.
A "+" appears for a moment to the left of the on-screen channel number display. This channel has now been added to the channel scan memory.

Repeat steps 1 and 2 for other channels to be added.



ERASING CHANNELS

- 1 Press the channel number button(s) and then ENTER to select the channel to be erased.
- 2 Press ERASE.
A “-” appears for a moment to the left of the on-screen channel number display. This channel has now been erased from the channel scan memory.

Repeat steps 1 and 2 for other channels to be erased.

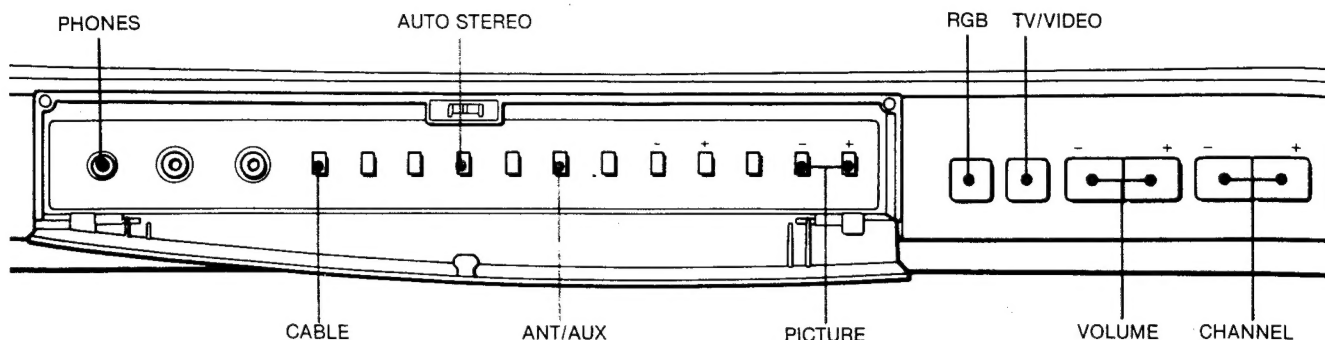
To add erased channels again, follow the steps in “ADDING CHANNELS”.

Note

When a VHF or UHF channel is erased, the cable TV channel with the same number is also erased and vice versa.

1-3. OPERATION

VIEWING TV PROGRAMS



Receiveable channels

VHF: 2-13

UHF: 14-69

Cable TV: 1-125

Cable TV channel chart*

Cable TV systems use letters or numbers to designate channels. To tune in a cable TV channel, refer to the chart below.

Number on this TV						1	5	6	14	15	16	17	
Corresponding CATV channel						A-8	A-7	A-6	A	B	C	D	
18	19	20	21	22	23	24	25	26	27	28	29	30	
E	F	G	H	I	J	K	L	M	N	O	P	Q	
31	32	33	34	35	36	37	38	39			93	94
R	S	T	U	V	W	W+1	W+2	W+3			W+57	W+58
95	96	97	98	99	100	101	102			123	124	125
A-5	A-4	A-3	A-2	A-1	W+59	W+60	W+61			W+82	W+83	W+84

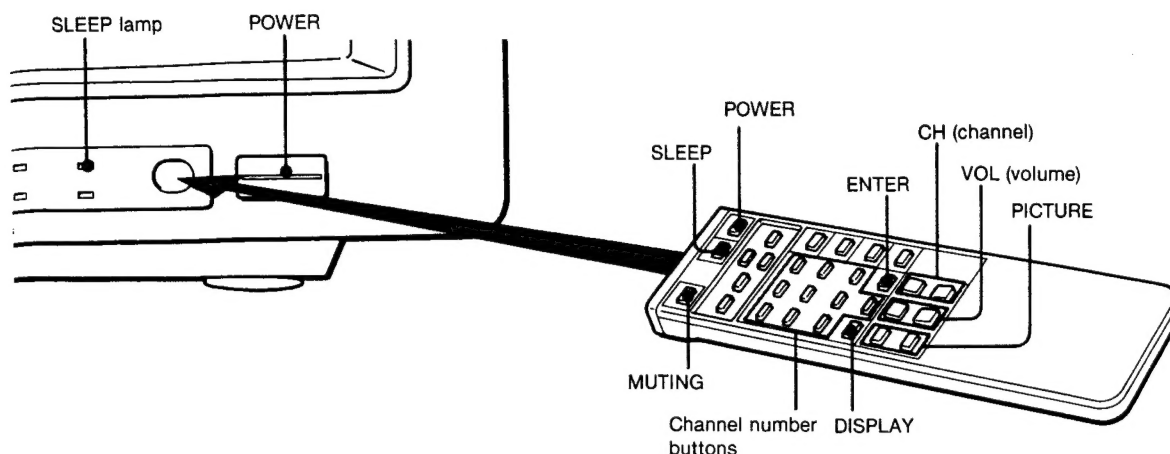
Check with your local cable TV company for more complete information on the available channels.

*The designation of the cable TV channels conforms to the EIA/NCTA recommendation.

PREPARATION

- 1 Press POWER to turn on the unit.
The SLEEP lamp lights up for a moment.
- 2 On-screen indications "VIDEO 1", "VIDEO 2", "VIDEO 3", "EXT-A" or "RGB" should be off. If not, press TV/VIDEO or RGB so that they disappear.
- 3 Set AUTO STEREO to ON to receive stereo broadcasts.
- 4 Set CABLE and ANT/AUX according to the channel to be watched.

Channel	CABLE button	ANT/AUX button
VHF	OFF	Press so that "AUX" disappears.
UHF		
Cable TV	ON	Press so that "AUX" appears.
Pay cable TV		



To select a channel directly

Press the channel number button(s), then press ENTER. For example, to select channel 125, press 1, 2, 5 and ENTER.

If you have pressed the wrong number button and have not pressed ENTER yet, wait until the on-screen channel number display disappears. Then press the correct buttons.

To scan the channels in numerical sequence

Press CH +/-.

To adjust the volume

Press VOL +/-.

To adjust the picture contrast

Press PICTURE +/-.

If the picture rolls vertically

Turn V HOLD on the rear panel.

To keep the on-screen indications displayed

Press DISPLAY.

Press again to make them disappear.

To mute the sound immediately

Press MUTING. "MUTING" appears.

To restore the sound to its previous level, press it again or press VOL +.

To have the unit turn off automatically after one hour

Press SLEEP. "SLEEP" appears for a moment. The SLEEP lamp lights up and remains lit until the unit is turned off. To cancel the sleep timer, press SLEEP again so that the lamp goes off.

To turn off the unit

Press POWER again.

To listen with a pair of headphones

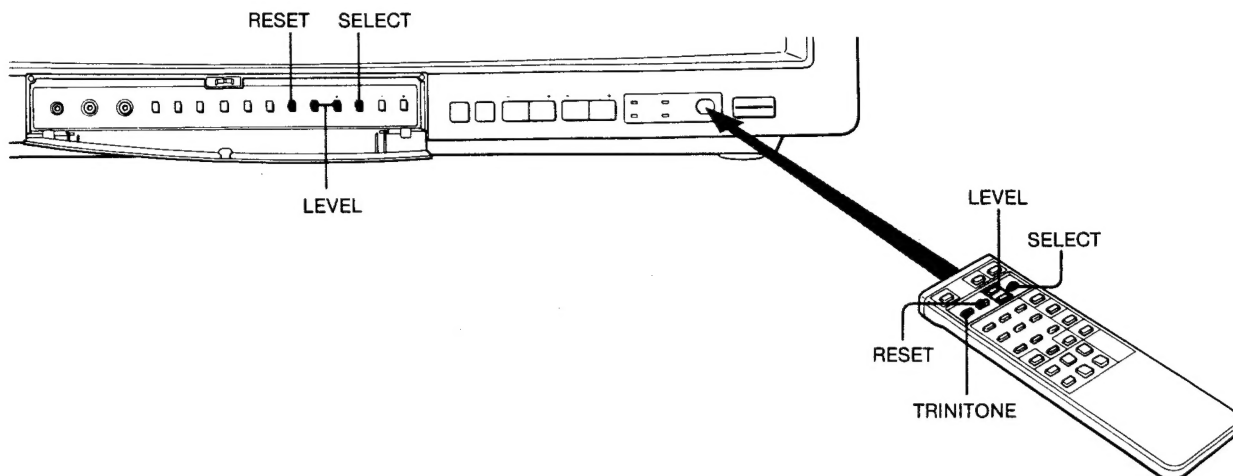
Connect the optional 8-ohm headphones to the PHONES jack (stereo mini-type).

The sound from the speakers will be cut off.

If your headphones have a stereo phone-type plug, use the optional PC-33 plug adaptor.

An earphone can also be connected to listen to the monaural (left channel) sound.

PICTURE AND SOUND ADJUSTMENTS



The following elements may be adjusted to suit individual tastes.

Picture: HUE, COLOR, BRIGHT (brightness), SHARP (sharpness)

Sound: TREBLE, BASS, BALANCE

- 1 Press SELECT repeatedly until the element to be adjusted appears on the screen.
- 2 Press LEVEL +(R)/-(L) to adjust the selected element.
A segmented color bar appears to indicate the level of adjustment.

Selected element	LEVEL buttons	
	– (L) button	+ (R) button
HUE ←	Skin tone becomes purplish. The red segments increase.	Skin tone becomes greenish. The green segments increase.
↓ COLOR	less color intensity	more color intensity The red segments increase.
↓ BRIGHT	less brightness	more brightness The green segments increase.
↓ SHARP	less sharpness	more sharpness The green segments increase.
↓ TREBLE	less treble response	more treble response The green segments increase.
↓ BASS	less bass response	more bass response The green segments increase.
↓ BALANCE	The left speaker's output is emphasized. The green segments increase.	The right speaker's output is emphasized. The red segments increase.

To adjust the tint (color temperature) of the picture

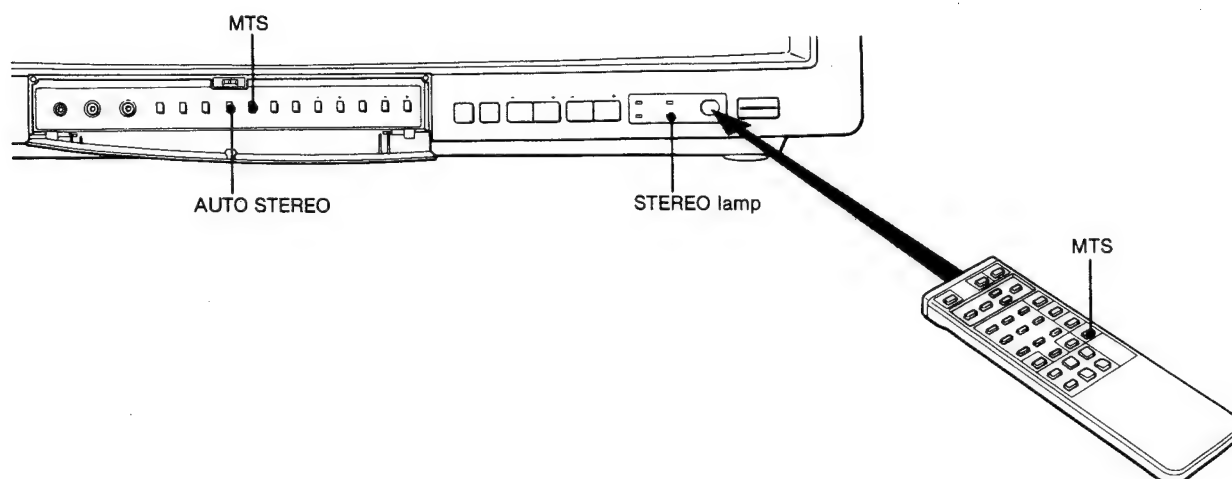
Press TRINITONE. "WHITE" appears.
Consecutive press of TRINITONE adjusts the picture as follows.

Color of "WHITE"	Adjustment
blue ←	The white part of the picture becomes bluish.
↓ red	The white part of the picture becomes reddish.
↓ white	The factory-set whiteness is restored.

To reset the elements to the factory-set levels

Press RESET. "RESET" appears for a moment.

LISTENING TO MULTICHANNEL TV SOUND (MTS) BROADCASTS



To receive a stereo broadcast

Normally, keep AUTO STEREO at the ON position. The STEREO lamp lights up whenever a stereo broadcast is received. To listen to this broadcast, press MTS so that "MAIN" appears.

To listen to a Second Audio Program (SAP) broadcast

Press MTS so that "SAP" appears.

To listen to both MAIN and SAP broadcasts

Press MTS so that "BOTH" appears. The MAIN and SAP sounds are emitted from the left and right speakers respectively. The MAIN sound becomes monaural even if it is a stereo broadcast.

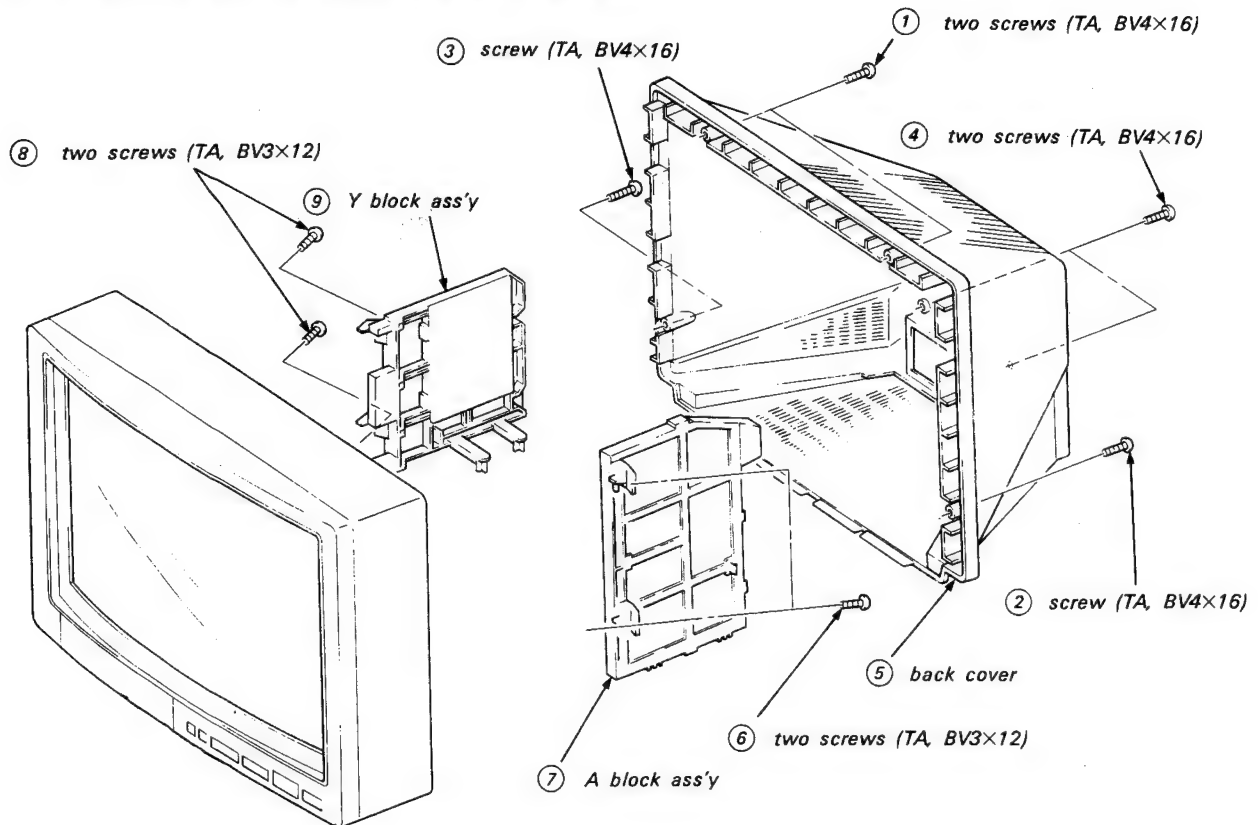
Notes

- Excessive noise may be heard during a stereo broadcast as a result of weak signals. In this case, set AUTO STEREO to OFF. The sound becomes monaural but the noise should be eliminated.
- If the SAP mode is selected when in fact there is no SAP broadcast, no sound is heard.
- Consecutive press of MTS changes the on-screen indication as follows.
MAIN → SAP → BOTH

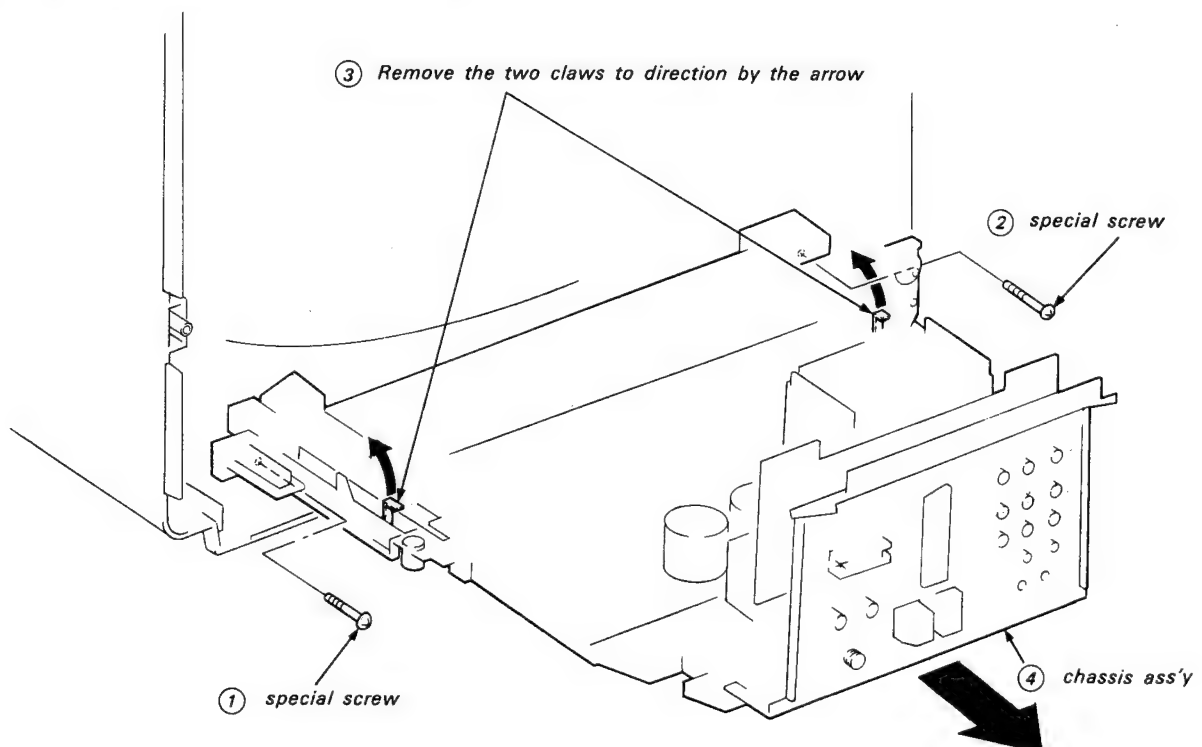
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

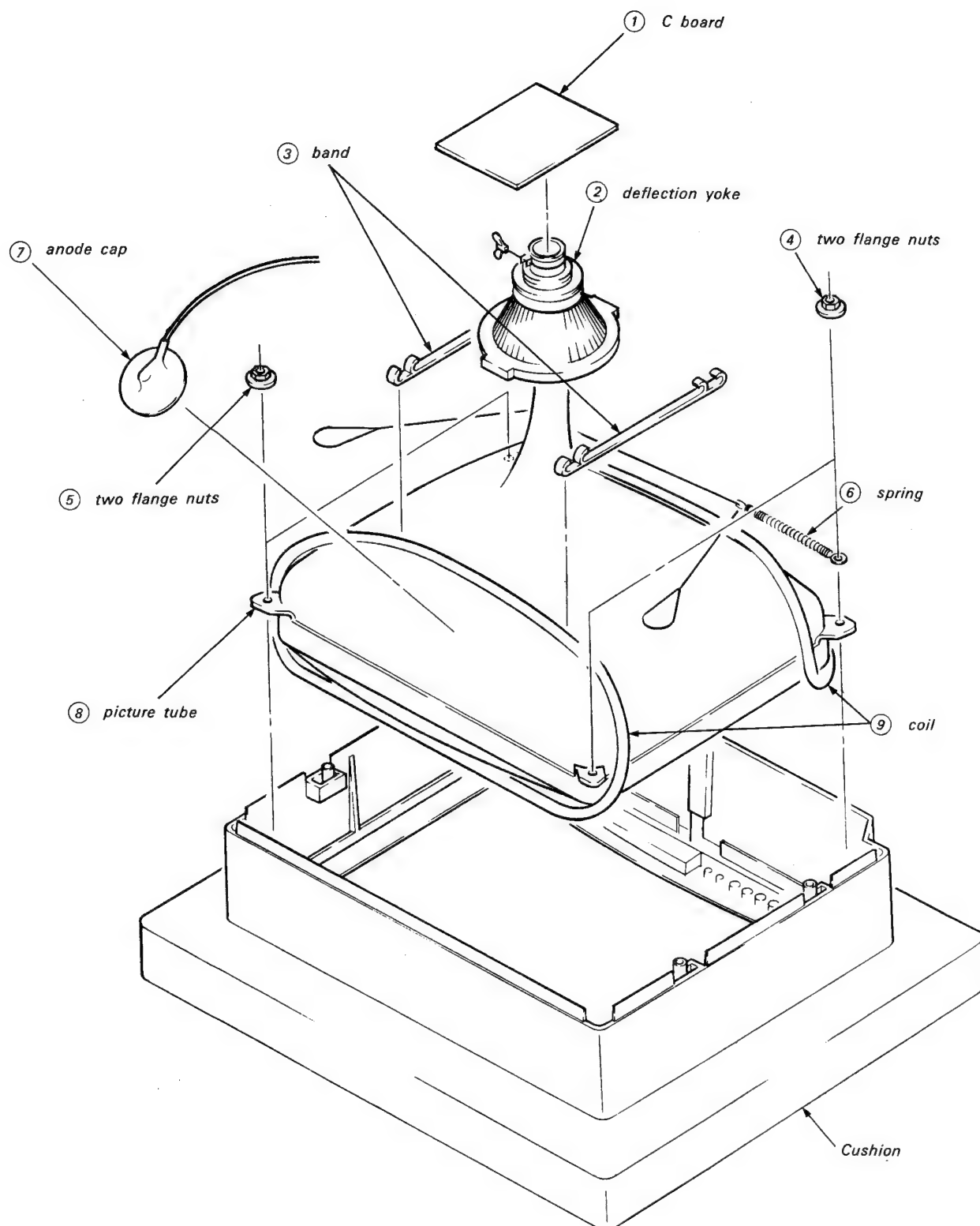
2-1. BACK COVER, Y BLOCK ASSEMBLY REMOVAL



2-2. CHASSIS ASSEMBLY REMOVAL



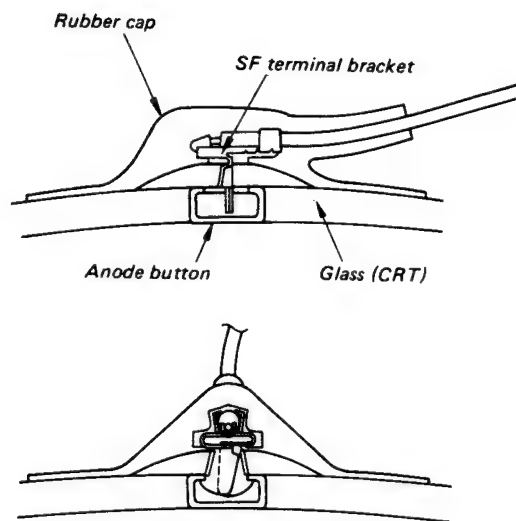
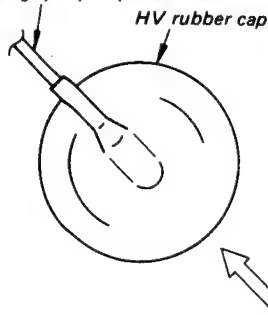
2-3. PICTURE TUBE REMOVAL



2-4. REMOVAL OF ANODE CAP

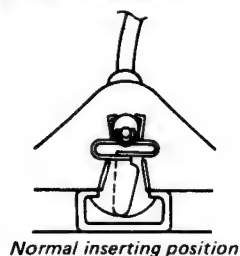
• Anode Cap Structure

High-voltage polyethylene wire

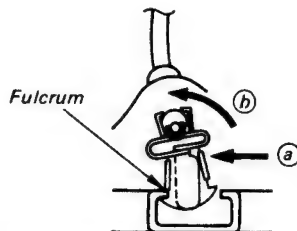


Cross section viewed from the arrow A

• Removal of SF Terminal

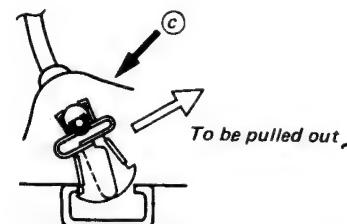


Normal inserting position



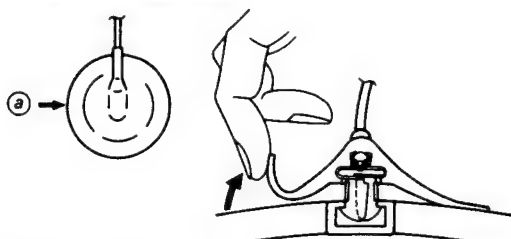
When pushing in the direction indicated by the arrow (a), the SF terminal tilts toward the fulcrum side due to the spring characteristic.

Remove it by pulling up in the direction indicated by the arrow (b) with the SF terminal tilted.

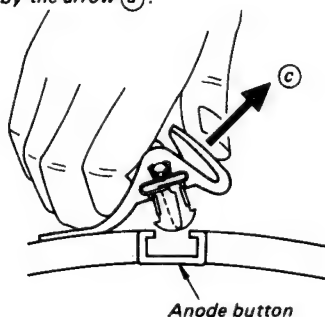


Tilt the SF terminal in the direction of the arrow (c) and pull out it in the direction (of 45°) indicated by the arrow.

• Removing Procedures



① Turn up one side of the rubber cap in the direction indicated by the arrow (a).



② Using a thumb, pull up the rubber cap firmly in the direction indicated by the arrow (b).

③ When one side of the rubber cap is separated from the anode button, the anode cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow (c).

SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted:

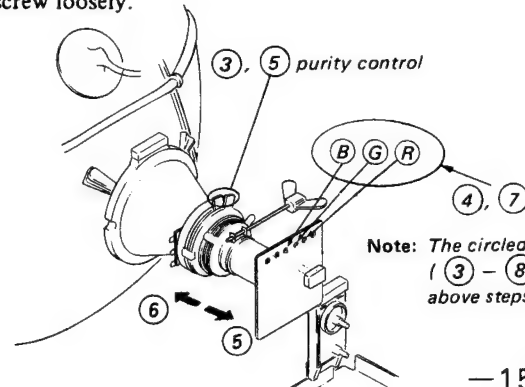
PICTURE control MAXIMUM

BRIGHTNESS control MAXIMUM

3-1. BEAM LANDING

Preparation:

- Feed in the white pattern.
 - Before starting, degauss the entire screen.
- Turn on set power supply and receive an all-white signal.
 - Evenly degauss the entire screen.
 - Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Figure 3-1.
 - Set BKG VR **R** to maximum and set **B** and **G** to minimum.
 - Move the deflection yoke back, and adjust the purity control so that **R** is in the center and **G** and **B** are at the sides, evenly. (Figure 3-2.)
 - Move the deflection yoke forward so that the entire screen is red.
 - If the deflection yoke is pushed all the way to the CRT then moved slightly back, landing adjustment is easier.
 - Substitute **G**, then **B** for **R** in step 4 and check landing.
 - Rotate **R**, **G** and **B** once each and check landing.
 - When landing is not right, adjust the purity control and use magnets as shown in Figure 3-3, then repeat steps 7 and 8.
 - When a magnet is used, be sure to perform step 2, and tighten deflection yoke mounting screw loosely.



Note: The circled numbers (3 - 8) show above steps.

Perform the adjustments in order as follows:

- Beam Landing
- Convergence
- White Balance

Note: Test Equipment Required.

- Color-bar/Pattern Generator
- Degausser

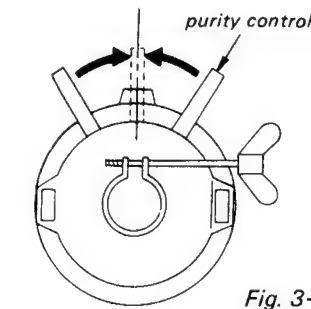


Fig. 3-2.

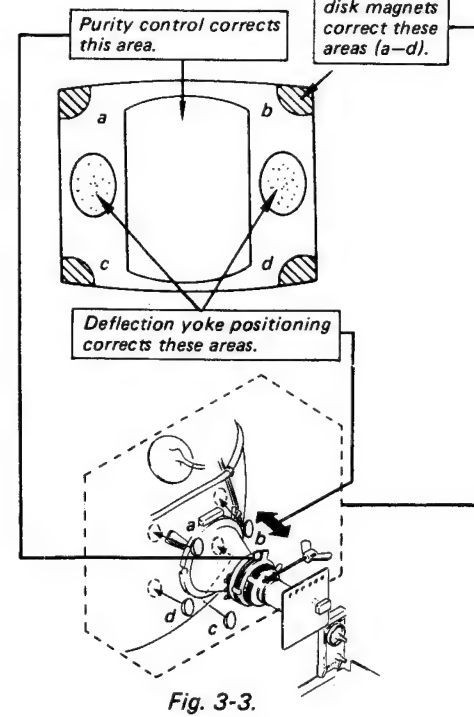


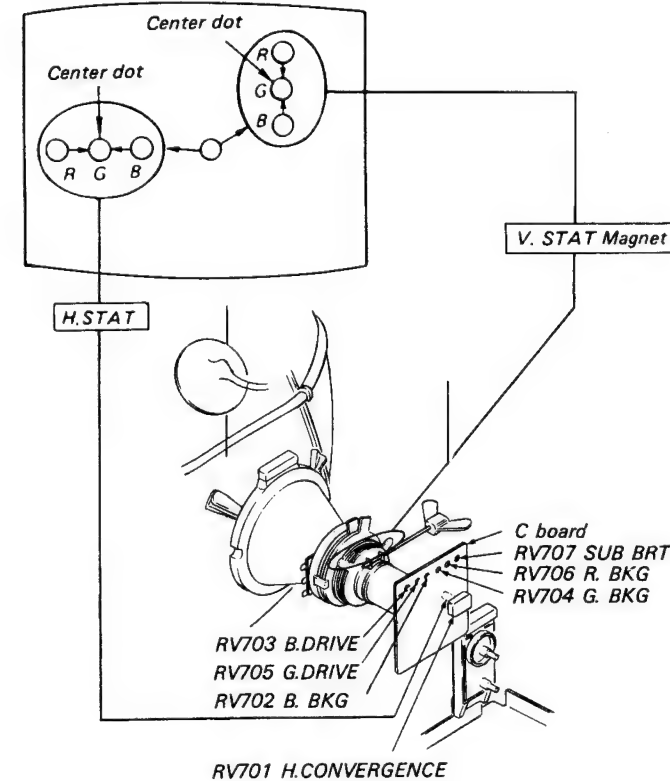
Fig. 3-3.

3-2. CONVERGENCE

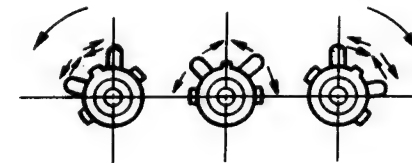
Preparation:

- Before starting, perform FOCUS, H. SIZE, V. SIZE and V. LIN adjustments.
- Set BRIGHTNESS control to fully counterclockwise.
- Feed in the dot pattern.

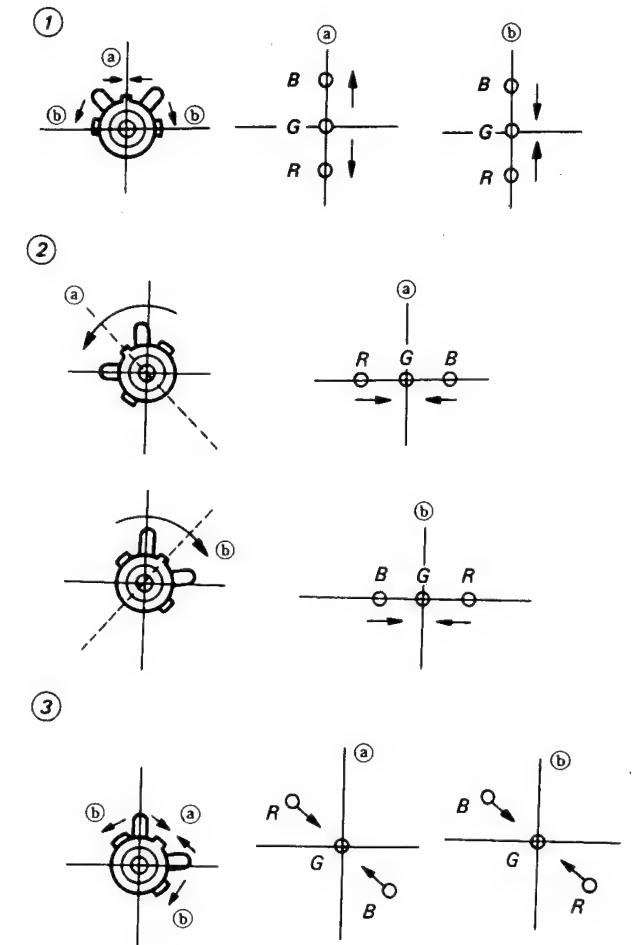
(1) Horizontal and Vertical Static Convergence



- Adjust H. STAT VR to coincide red, green and blue dots on the center of screen (Horizontal movement)
- Adjust V. STAT magnet to coincide red, green and blue dots on the center of screen (Vertical movement)
- If the red, green and blue dots do not coincide on the center of screen with H. STAT VR, perform horizontal convergence adjustment using H. STAT VR and V. STAT magnet as shown below. (In this case, H. STAT VR and V. STAT magnet effect each other.)
 - Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.



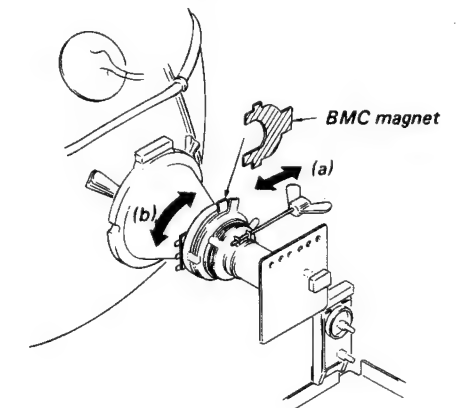
- When the V. STAT magnet is moved in the direction of arrow (a) and (b), Red, Green and Blue dots move as shown below.



If blue dot does not coincide with red and green dots, perform following steps.

- Move BMC magnet (a) to correct insufficient H. static convergence.
- Rotate BMC magnet (b) to correct insufficient V. static convergence.

In either case, repeat Beam Landing Adjustment.



(2) 1

Prep
• Be
St

1. Lc
2. R

3

Fe

- 1.
- 2.
- 3.
- 4.

(2) Dynamic Convergence Adjustment

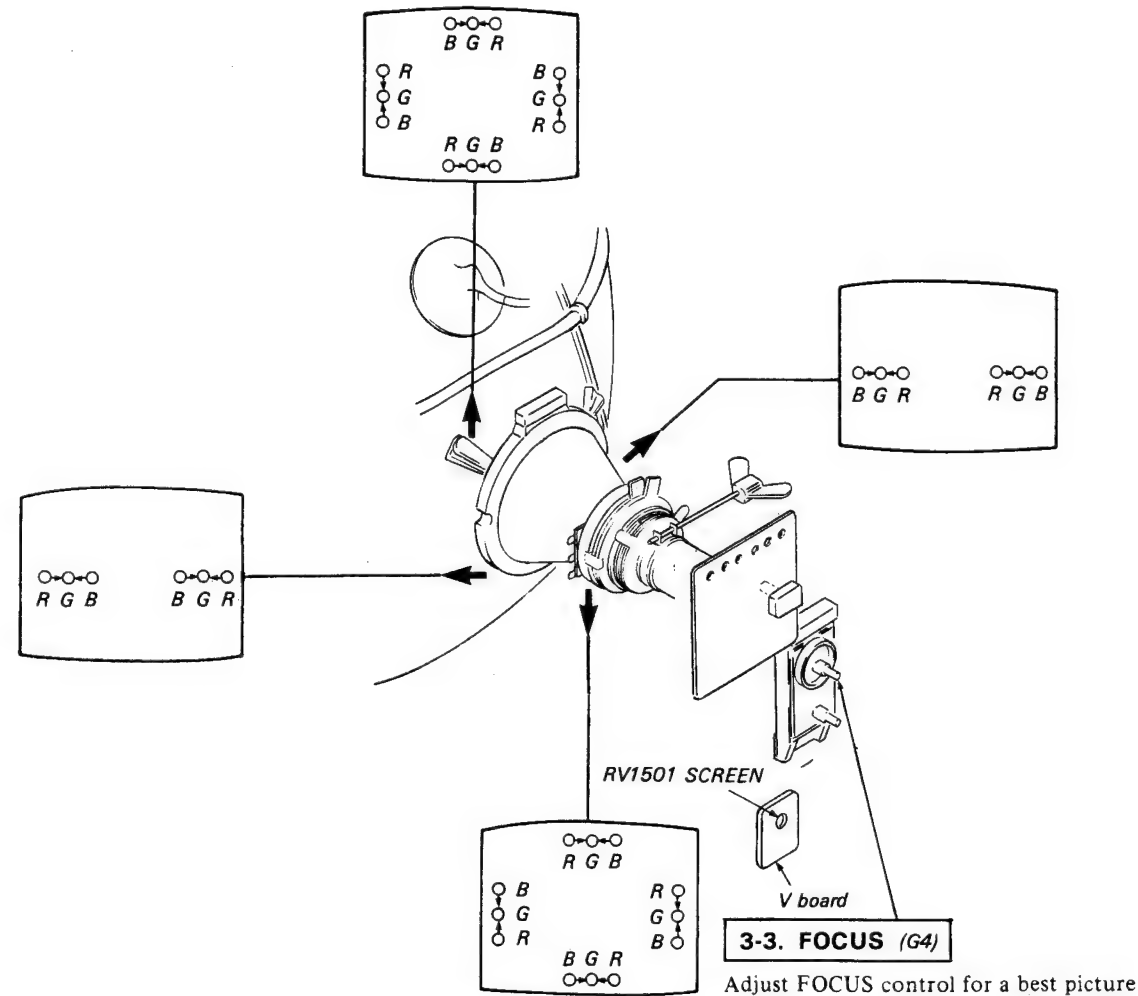
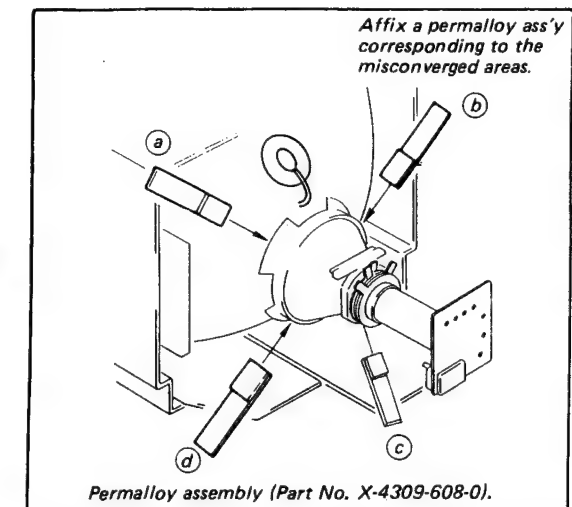
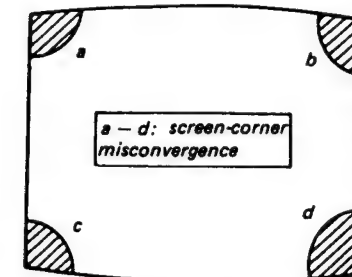
Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

- Loosen deflection yoke screw.
- Remove deflection yoke spacers.

- Move the deflection yoke for best convergence as shown below.
- Tighten the deflection yoke screw.
- Install the deflection yoke spacers.

(3) Screen-corner Convergence



Adjust FOCUS control for a best picture.

3-4. WHITE BALANCE

Feed in the cross-hatch pattern.

- Turn BRIGHTNESS and PICTURE controls to maximum.
- Turn RV703 (B. DRIVE) and RV705 (G. DRIVE) fully counterclockwise.
- Set RV706 (R. BKG), RV704 (G. BKG), and RV702 (B. BKG) to fully counterclockwise.
- Turn RV1501 (SCREEN) slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning RV1501. Do not turn a BKG control for this color.
- Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch.
- Turn BRIGHTNESS and PICTURE controls fully counterclockwise. Observe the screen and adjust the DRIVE controls for best white balance.
- Repeat Steps 1 through 6 several times.

RGB Adjustment

- Connect a microcomputer to the digital RGB connector.
- Press the RGB button to set it into "RGB" mode.
- Set the PICTURE control to minimum position, and BRIGHT control to the standard one.
- Display characters on the entire screen, and set the SUB BRIGHT (RV401 and RV402), and RGB SUB BRIGHT (RV403) controls to their 50% positions respectively.
- Adjust the white balance by turning the SUB BRIGHT (RV401 and RV402) controls so that the displayed characters become white.
- Adjust roughly by turning the RGB SUB BRIGHT (RV403) control so that the darkest part of raster becomes cut off.

SECTION 4

CIRCUIT ADJUSTMENTS

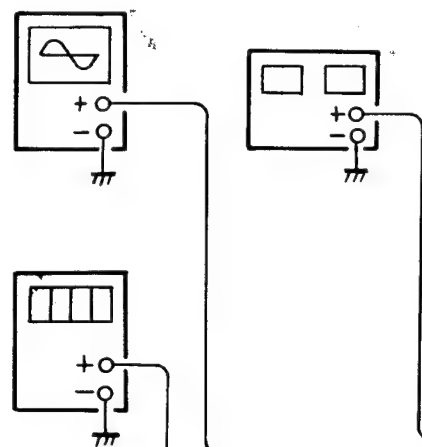
4-1. A BOARD ADJUSTMENTS

KV-20XBR II
RM-724/APM-X4

KV-20XBR II
RM-724/APM-X4

BAR DISPLAY POSITION ADJUSTMENT

- (1) Receive the broadcasting signal.
- (2) Press the picture button so that the received signal becomes maximum.
- (3) At this point, adjust the undisplayed portions of the left and right sides of the bar signal so as to become equal with L102.

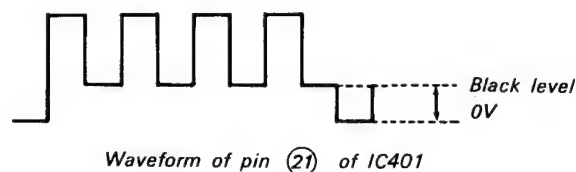


L102
CHR
POSITION

RV303
HUE CTR

BLACK LEVEL ADJUSTMENT

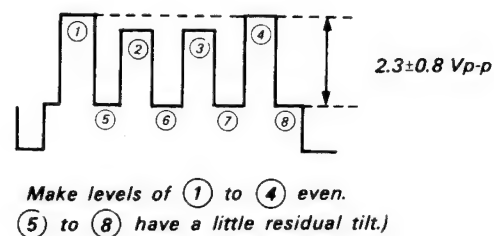
- (1) Receive color bar signal.
- (2) Set the analog level of the microcomputer to the standard.
- (3) Add 6V DC to pin (6) (SUB BRT terminal) of A-16 connector.
- (4) Adjust the black level volume (RV406) so as to the voltage of pin (12) of IC401 (black level terminal) becomes equal to the black level waveform of Pin (21) of IC401.



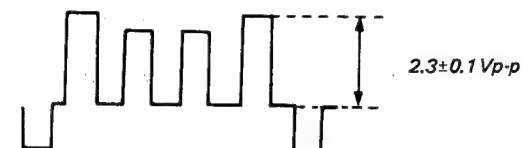
(Caution) The black level of pin (21) waveform of IC401 should be equal to the pedestal level. In addition, the voltage of pin (12) of IC401 should not be higher than that of the black level.

ACC ADJUSTMENT AND HUE ADJUSTMENT

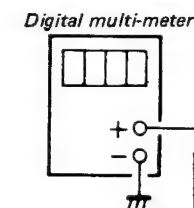
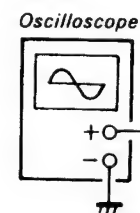
- (1) Receive color bar signal.
- (2) HUE 50% (resetting)
COLOR THICKNESS 50% (resetting)
PICTURE Maximum
- (3) Connect pin (20) of IC301 to 12V line (pin (10) of IC301) with a 47KΩ resistor.
- (4) Observe pin (17) of IC401 with an oscilloscope, and adjust the output waveform so as to become that as shown in the diagram by turning the ACC volume (RV304) and Hue volume (RV303).



- (5) Confirm that the voltage at the middle point of the ACC volume (RV304) should be less than 9V.
- (6) Confirm that the blue output should be 2.3±0.1V after adjusted.

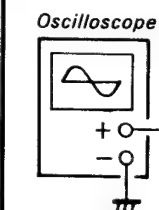


(Caution) Measurement should be performed under the conditions that removing A-16 connector and not applying ABL.



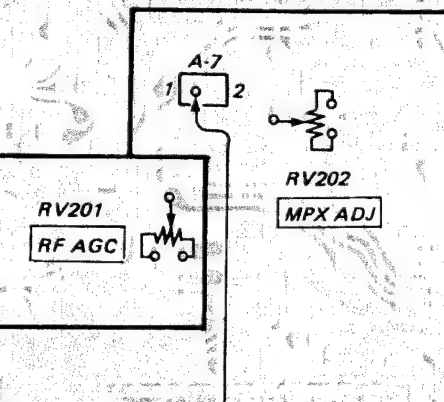
RF AND AGC ADJUSTMENT (ROUGH ADJUSTMENT)

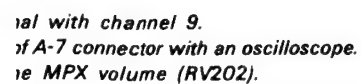
- (1) Adjust with RV201 (RF AGC) so as to disappear snow noise and cross-modulation.
- (2) Confirm them at every channel.



MPX ADJUSTMENT

- (1) Receive dot signal with channel 9.
- (2) Observe pin (1) of A-7 connector with an os
- (3) Adjust it with the MPX volume (RV202).

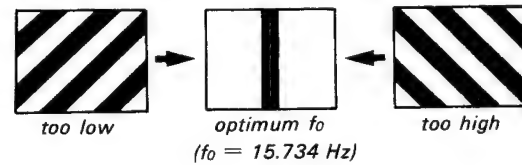




4-2. D BOARD ADJUSTMENTS

H-FREQUENCY ADJUSTMENT

- (1) Connect pin ① and pin ⑪ of IC501.
- (2) Connect pin ③ of A board to 12V line (pin ⑧ of IC302) with a resistor of 10 k Ω .
- (3) Adjust the picture flow with H-frequency(RV501) so that it will become as shown below.



- (4) Return steps (1) and (2) to their original states, and confirm that H-sync is normal and the picture does not become disordered even if the channels are switched over.

V-SIZE ADJUSTMENT (ROUGH ADJ.)

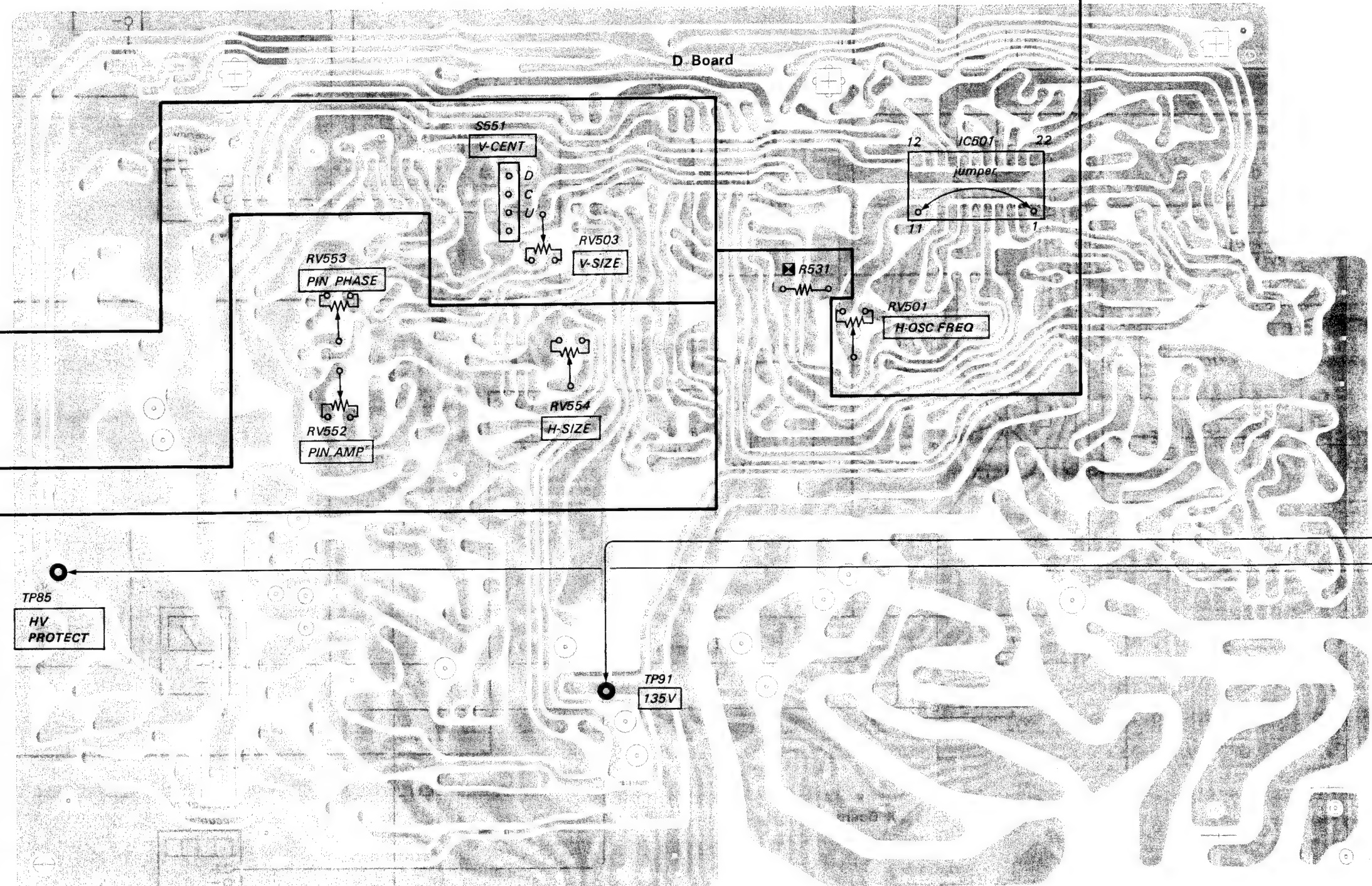
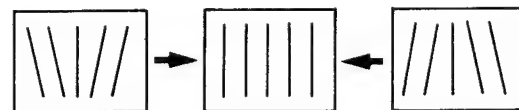
Adjust V-SIZE with the V-SIZE VR (RV503) so that it will become 11.8 ± 0.15 frames.

LEFT AND RIGHT PIN DISTORTION ADJUSTMENT (ROUGH ADJ.)

- (1) Adjust the H-SIZE with the H-SIZE VR(RV554) so that it will become 15.8 ± 0.15 frames.
- (2) Adjust PIN AMP VR (RV552) to make vertical lines straight as shown below.




- (3) Adjust PIN PHASE VR(RV553) to make vertical lines straight as shown below.



4-3. SAFETY RELATED ADJUSTMENTS

R531 CONFIRMATION METHOD (HOLD-DOWN
CONFIRMATION) AND READJUSTMENTS

When replacing the following components (marked with  the schematic diagram), always perform the adjustment as follows:
D507, D508, D510, IC501, Q503, Q504, R427, R431, R437, R438, R512, R519, R529, R530, R531, R532, R533, R534, R542, R544

(1) Preparation before confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHT controls to maximum.
- 2) Confirm that the voltage of TP85 is more than 12.96V when the set is operating normally with AC 120V supply.

CHECK AFTER IC651, R657 REPLACEMENT

- 1) Supply 130V ac to with variable auto-transformer.
- 2) Tune in an off-air signal.
- 3) Set the PICTURE and BRIGHT controls in to the RESET state.
- 4) Confirm the voltage of TP91 is less than 137.40V dc.
- 5) If step 4) is not satisfied, replace IC651 and R657 on GB board and repeat above steps.

(2) Hold-down operation confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals, and adjust ABL current to $1500 \pm 20 \mu\text{A}$ with PICTURE, BRIGHT, etc. controls.
- 2) Apply DC voltage of over 12.96V gradually to TP85 via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 17.85 Vdc whereby the raster disappears during operation of the holddown circuit.


Note: When the hold-down circuit starts operating, switch OFF the power of the set immediately.

- 3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to $180 \pm 5 \mu\text{A}$ with PICTURE, BRIGHT, etc. controls.

- 4) Apply DC voltage of over 12.96V gradually to TP85 via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 18.90Vdc whereby the raster disappears during operation of the holddown circuit.

Note: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

(3) Hold-down readjustment

When step (2) is not satisfied, readjustment should be performed by altering the resistance value of R531 (a component marked with ).

(4) Confirmation of hold-down erroneous operation

- 1) Turn the POWER switch ON, and receive dot signals and set the PICTURE and BRIGHT controls to minimum.


- 2) Confirm that the hold-down circuit does not operate by turning the POWER switch ON and OFF repeatedly several times.

Note: If the hold-down circuit starts operating in the above case, switch OFF the POWER of the set immediately.

- 3) Turn the POWER switch ON, and receive dot signals and entirely white signals, and set the PICTURE and BRIGHT controls to maximum.

- 4) Confirm that the hold-down circuit does not operate by performing switchover of the channels of dot signals and entirely white signals several times.

Note: If the hold-down circuit starts operating in the above case, switch OFF the POWER of the set immediately.

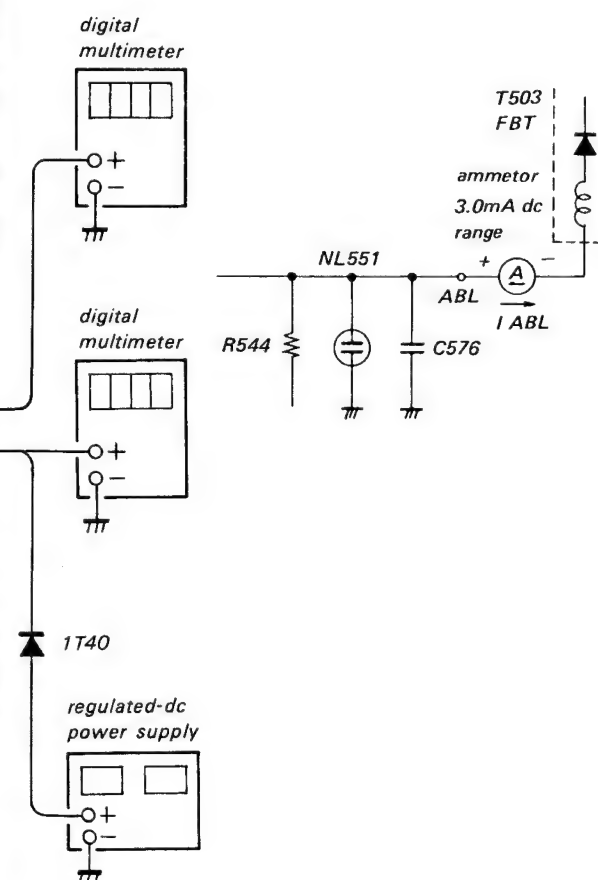
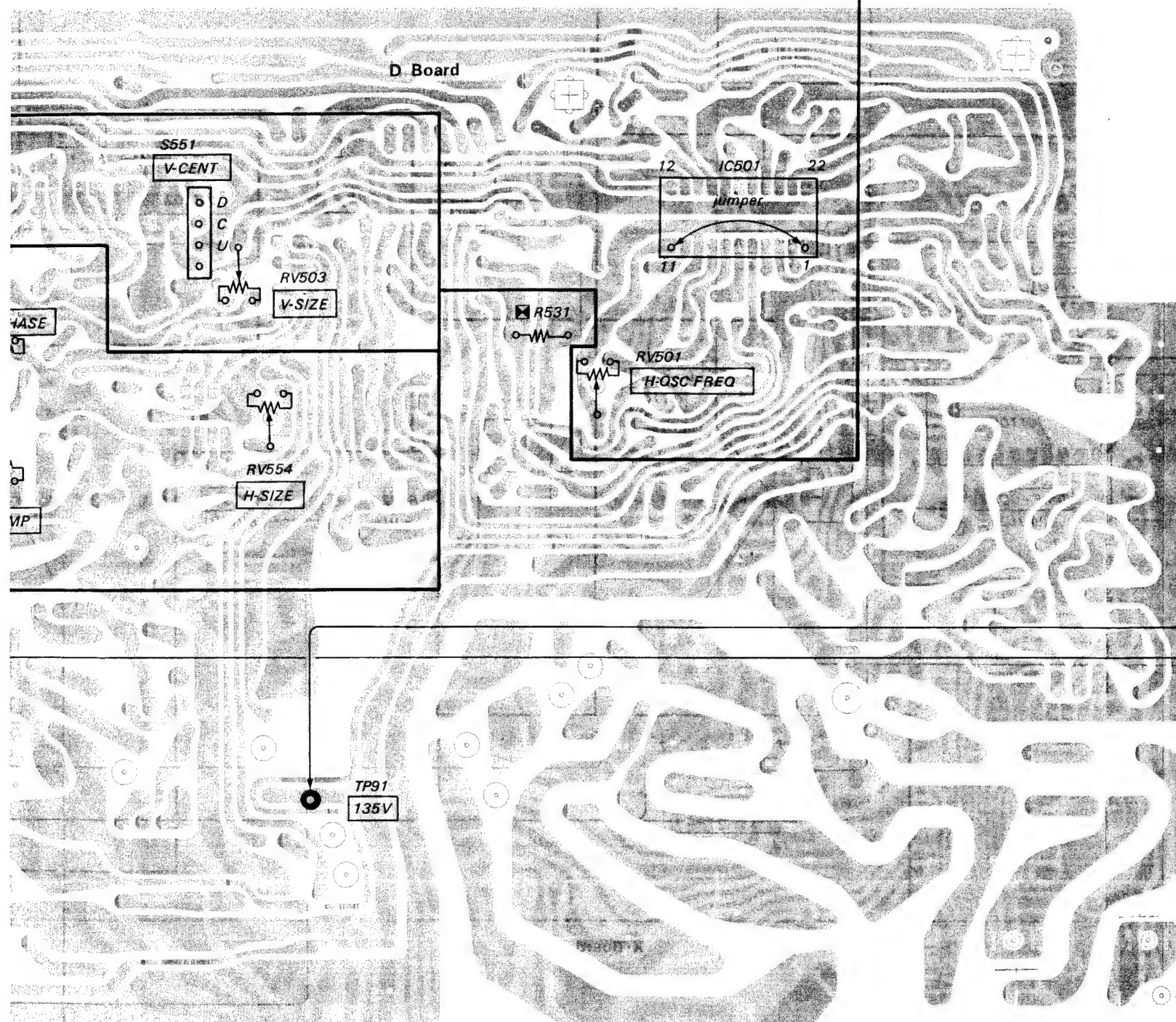
- 5) If the above-mentioned steps 1) to 4) are not satisfied, reconfirm steps (2) and (4) by altering the R531 smaller resistance value(a component marked with ).

CONFIRMATION WHEN REPLACING T503 (FLY-BACK
TRANSFORMER)

When replacing T503 (Fly-back transformer), the following confirmations should be performed with reference to whether an X-ray radiation control circuit is connected or not.

(1) Connection confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHT controls to maximum.
- 2) When the set is operating normally with AC 120V supply, confirm that the voltage of TP85 is over 12.96 Vdc.



4-4. X BOARD ADJUSTMENTS

SIGNAL SET UP

V MAIN (L+R) signal: 300 Hz, 247 mVrms (0.7 Vp-p)
V SUB (L-R) signal: 400 Hz, 100% modulation
Carrier: 31.468 kHz
1.4 Vp-p
V SAP signal: 400 Hz, 100% modulation
(± 10 kHz deviation)
0.42 Vp-p
Carrier: 78.671 kHz
STEREO PILOT signal: 15.734 kHz
0.14 Vp-p

SEPARATION

1. Set to the SAP mode.
2. Input 300 Hz, 63.0 mVrms (-21.8 dBs) sine wave signal to dBX IN.
Adjust RV1110 to 0.15 Vp-p ± 5 mV at IC1106 output pins (2) and (3) [L] outputs, and to (9) and (10) [R] outputs, at this time.

oscilloscope

oscillator

300 Hz
63.0 mVrms
(-21.8 dBs)

(L+R) GAIN

1. Supply a V MAIN signal to pin (1) of X-1 connector.
2. Sets the MAIN mode, and STEREO or MONO mode.
3. Adjust RV1104 to 0.6 Vp-p ± 20 mV at pins (9) and (10) [R] outputs and to pin (2) and (3) [L] outputs of IC1106.

NOISE REDUCTION VARIABLE DE-EMPHASIS

1. Sets RV1109 (VD ADJ) and RV1110 (SEPARATION) to mechanical center.
2. Connect the 1 k Ω Resistor between the EMITTER and 9V LINE to turn OFF the Q1110.
3. Input 300 Hz, 46.9 mVrms (-24.3 dBs) sine wave signal to dBX IN.
Read the output level (Va) of dBX OUT and make sure that the level (Va) is -35 dBs $< V_a < -23$ dBs.
4. Input 8 kHz, 106.2 mVrms (-17.2 dBs) sine wave signal to dBX IN.
Adjust RV1109 (VD ADJ) so that the output level (Vb) of dBX OUT will become V_b (dBs) = V_a (dBs) - 11.3 (dB) at this time.
0 dBs = 0.775 Vrms

• 300 Hz, 46.9 mVrms (-24.3 dBs)
• 8 kHz, 106.2 mVrms (-17.2 dBs)

10 μ F/16V

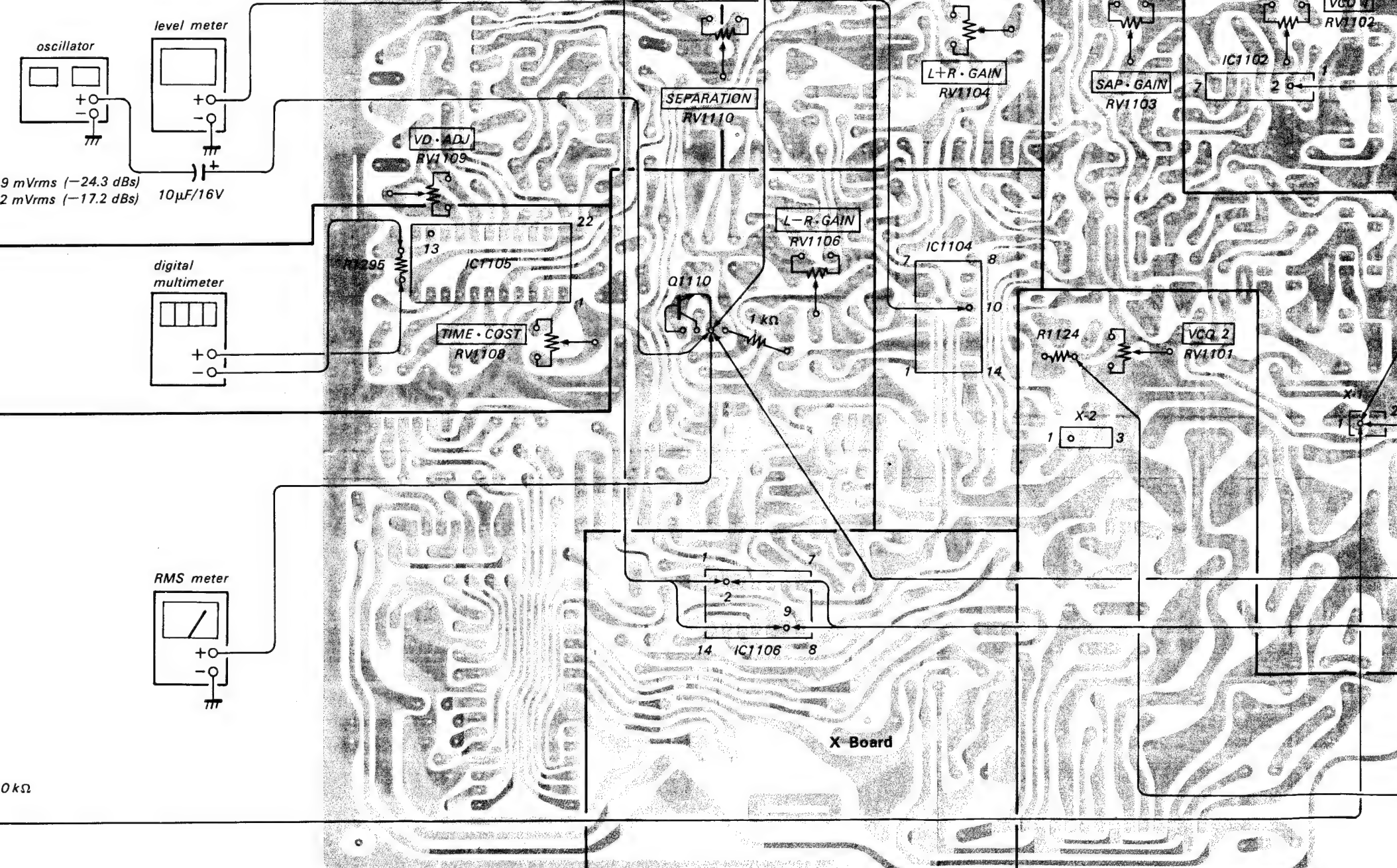
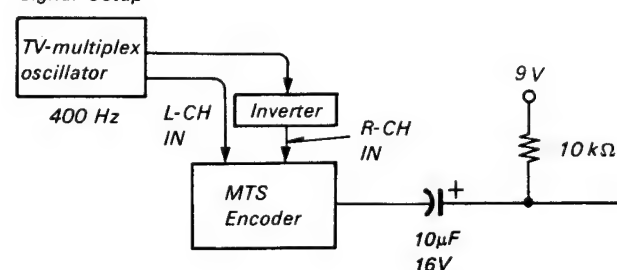
NOISE REDUCTION (TIME CONSTANT)

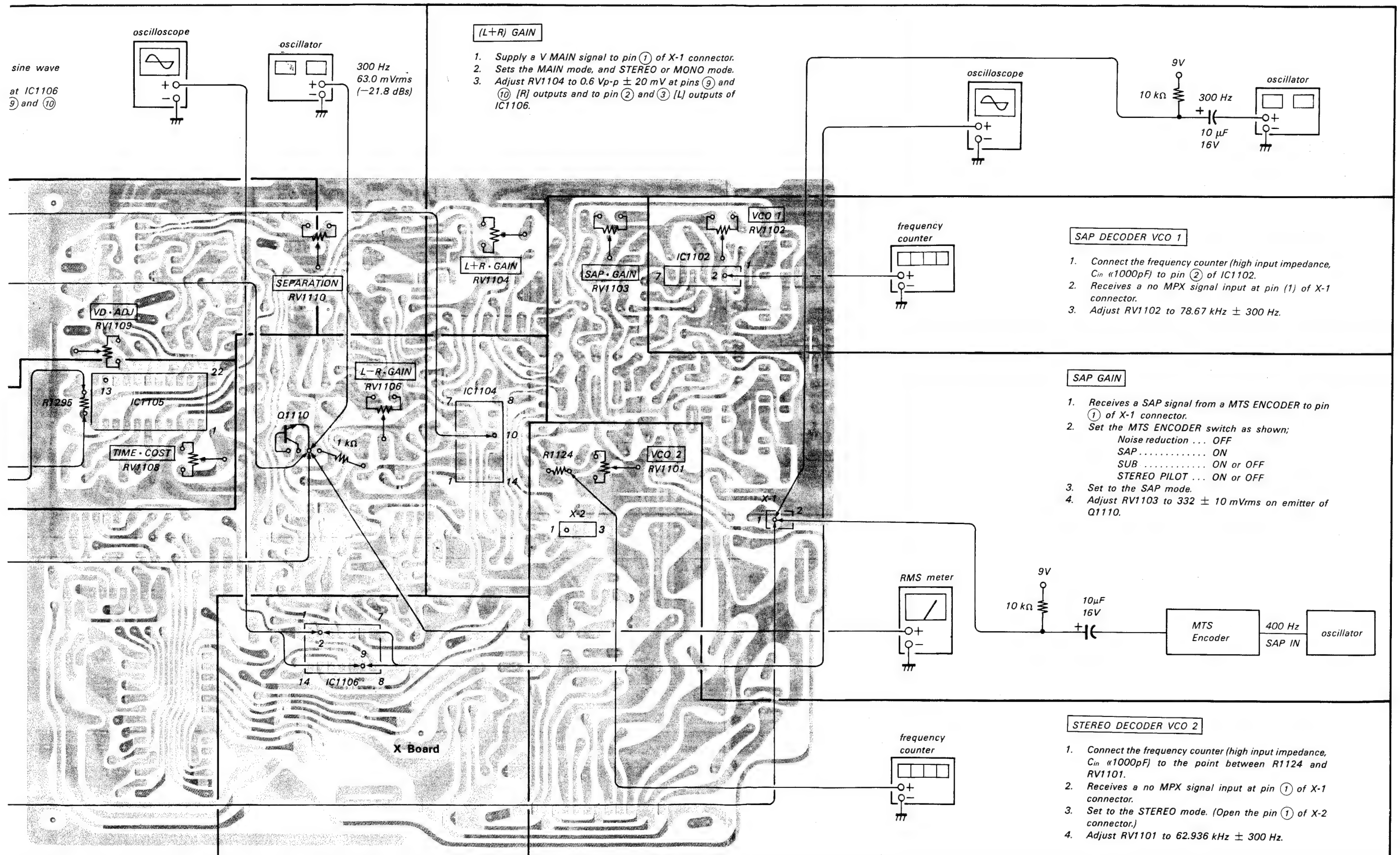
1. Adjust RV1108 to 15 ± 1 mVdc at IC1105 pin (13) as shown.

(L-R) GAIN

1. Receives a composite signal (SUB signal and STEREO PILOT signal) from a MTS ENCODER to pin (1) of X-1 connector.
2. Set the MTS ENCODER switch as shown:
Noise reduction ... OFF
SUB ... ON
STEREO PILOT ... ON
SAP ... ON or OFF
3. Set the MAIN mode of the DECODER.
4. Adjust RV1106 to 332 ± 10 mVrms on emitter of Q1110.

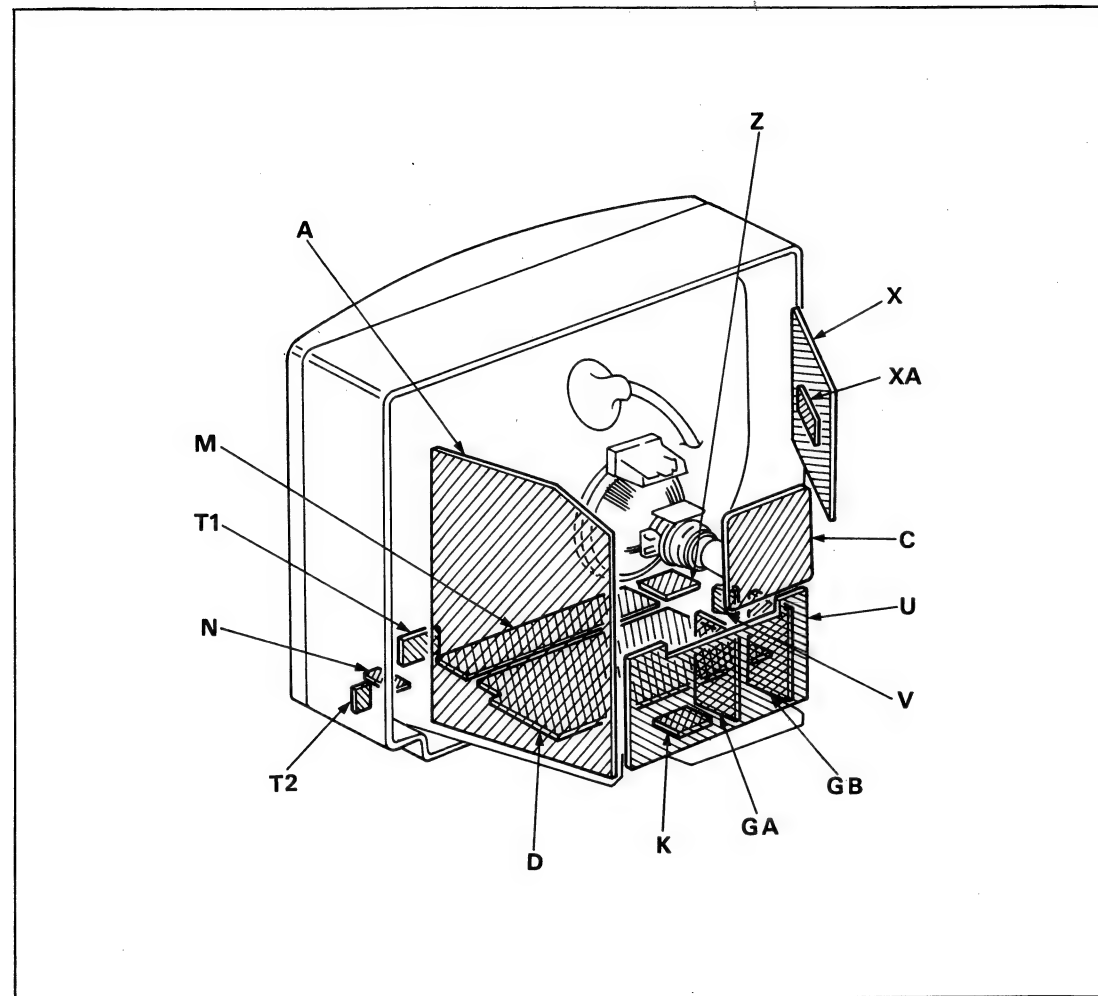
Signal Setup



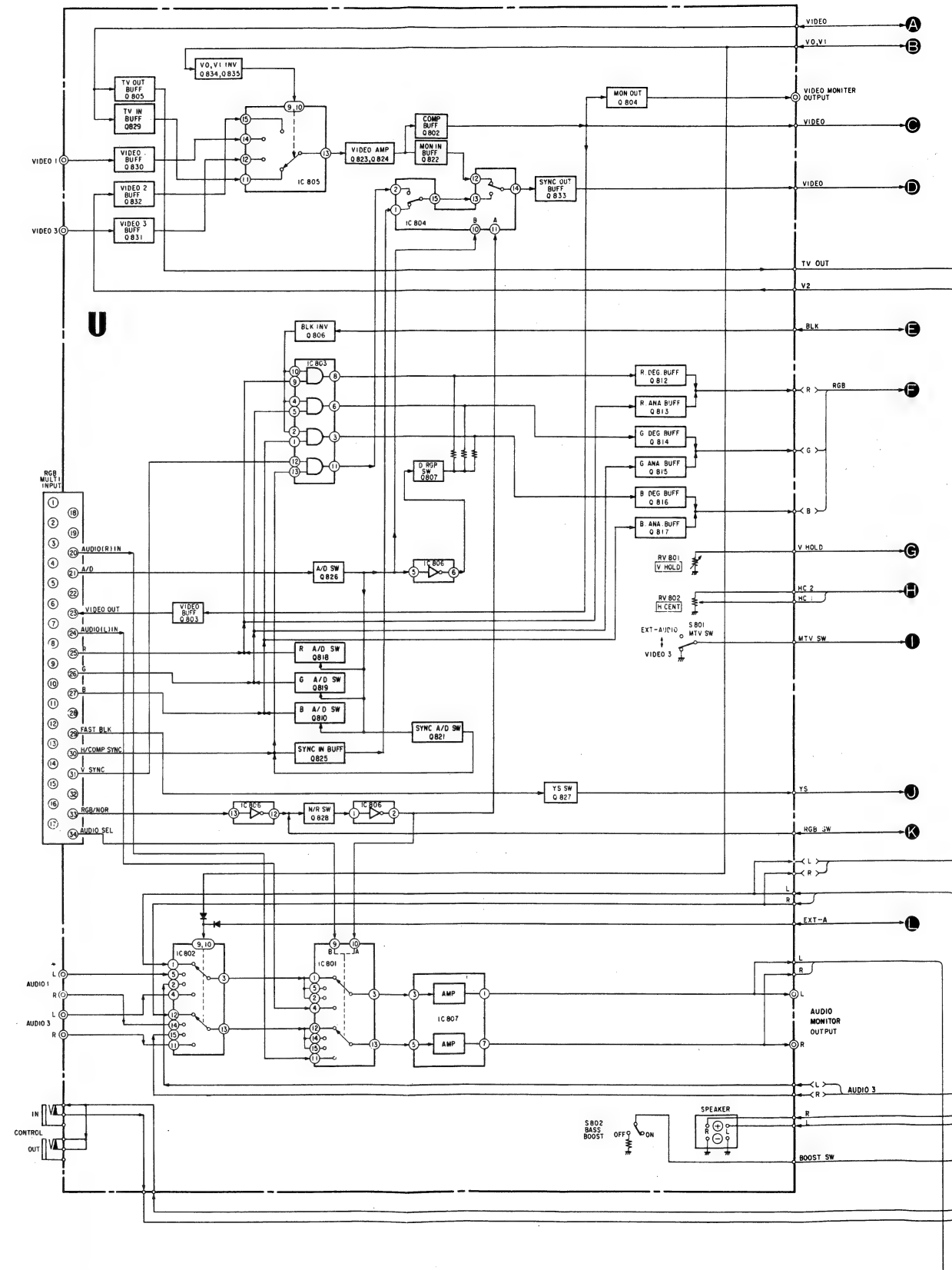


SECTION 5 DIAGRAMS

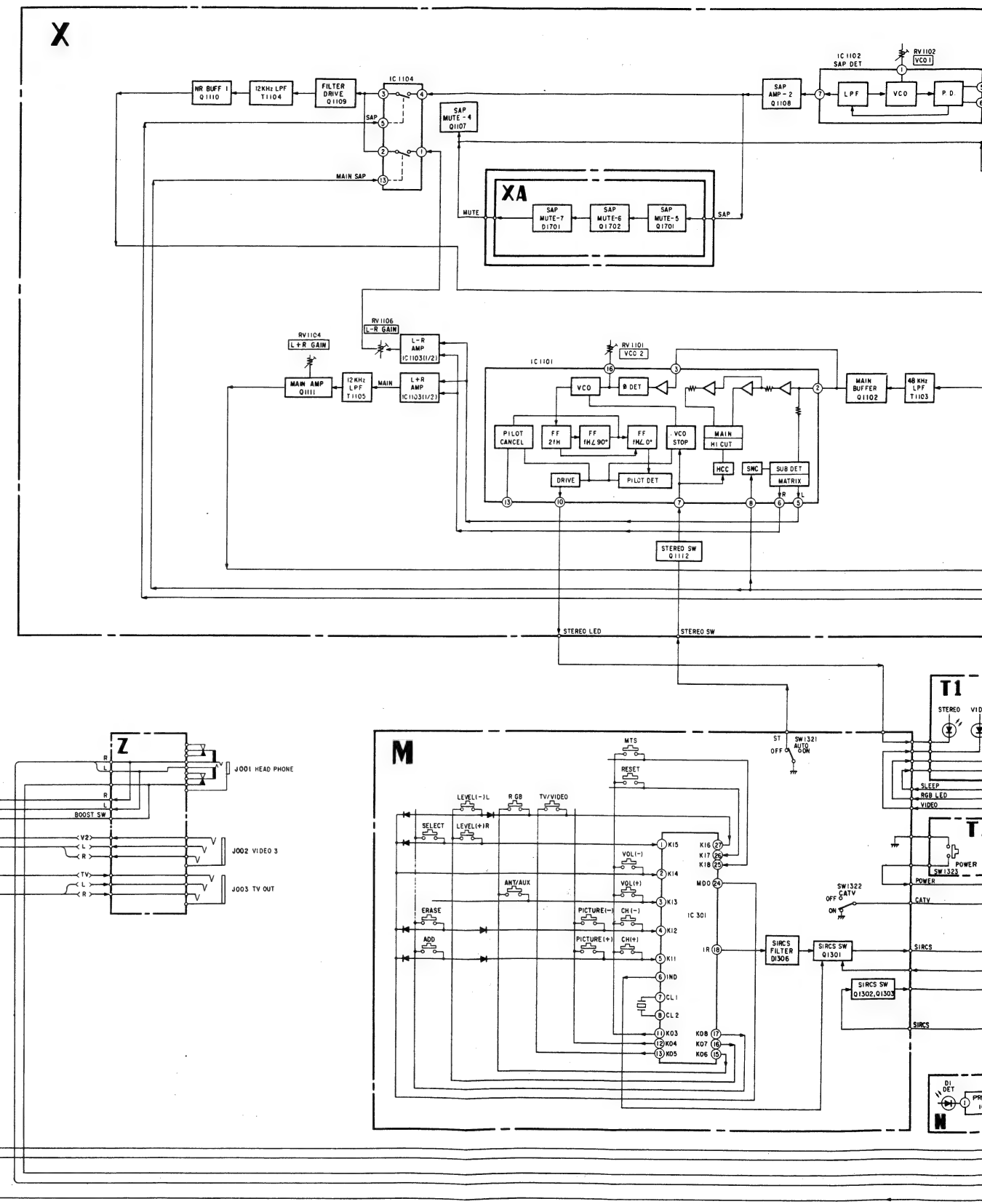
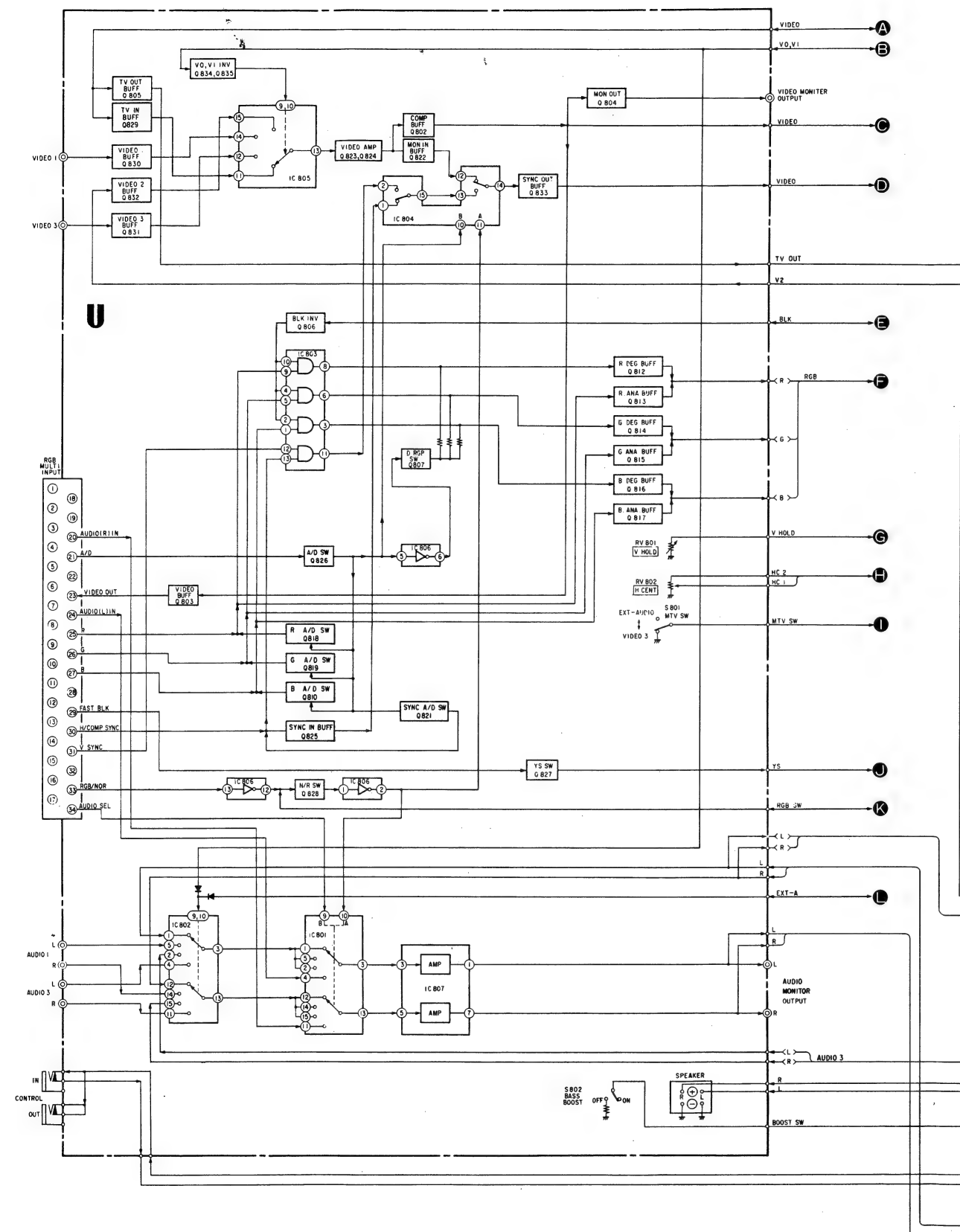
5-1. CIRCUIT BOARDS LOCATION

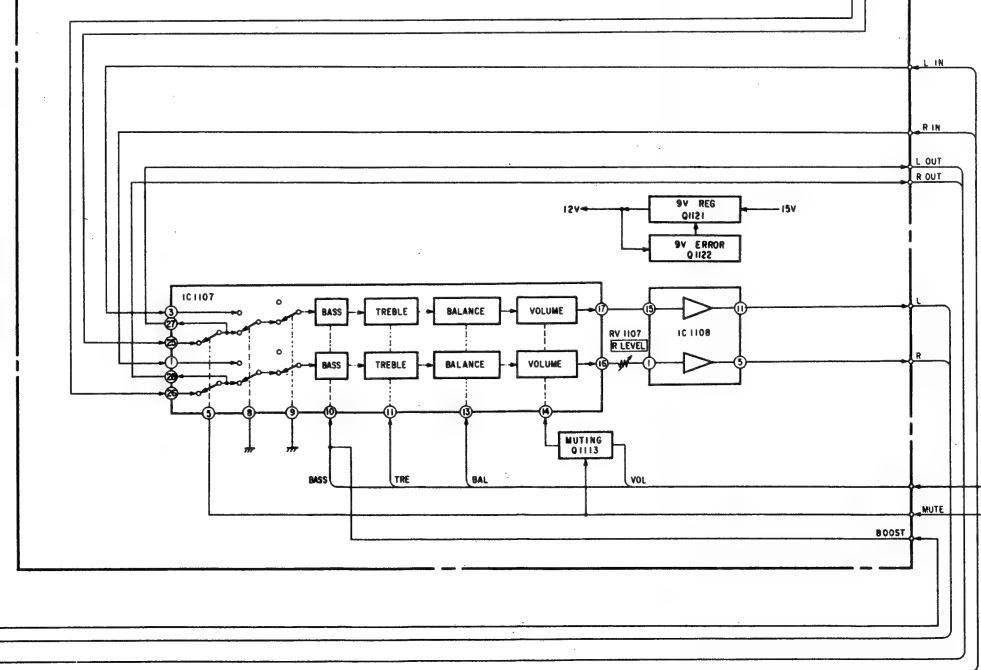


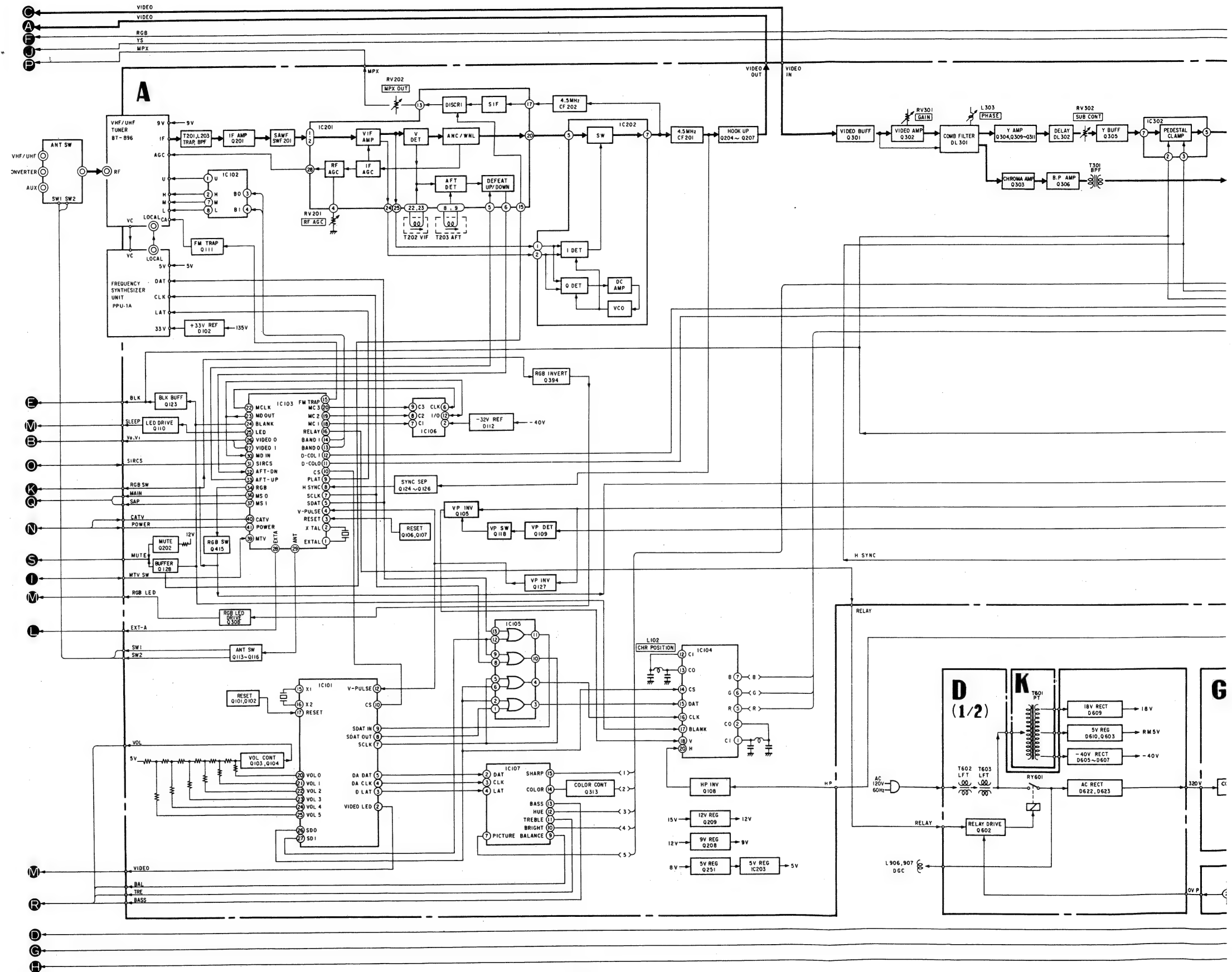
5-2. BLOCK DIAGRAMS

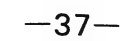


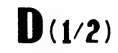
5-2. BLOCK DIAGRAMS



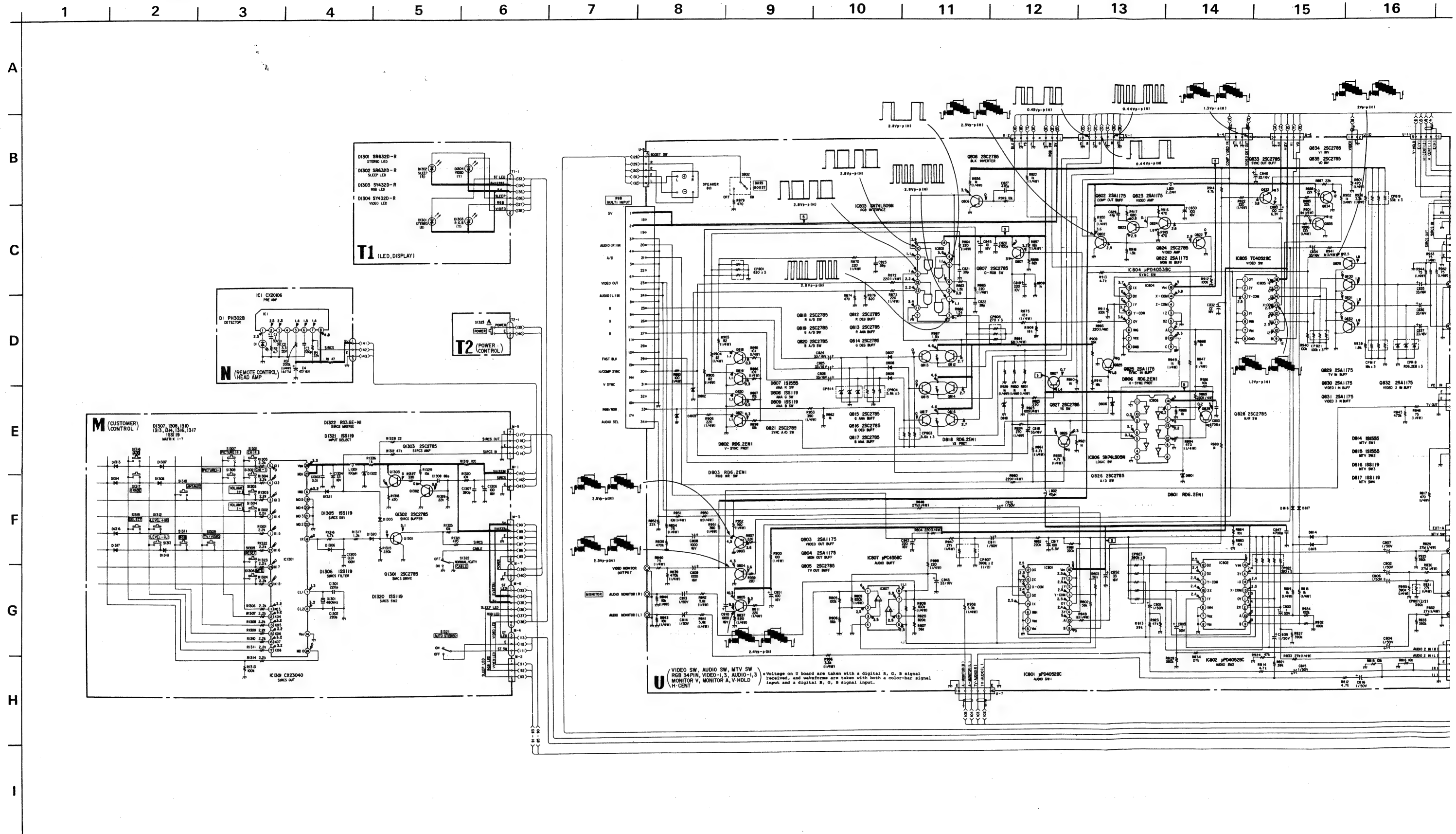








5-3. SCHEMATIC DIAGRAMS



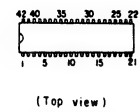


34

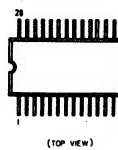


5-4. SEMICONDUCTORS

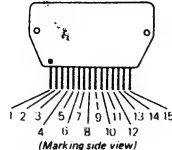
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CX530-507N
CX-848



CX23040



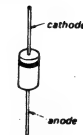
STK4352



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2SC1363
2SC1364
2SC1740S
2SC1890A



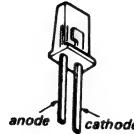
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EQA02-12B5
ERA81-004
GP08D
HZT33-02
RGP01-17



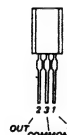
EM-1Z
RM2CS



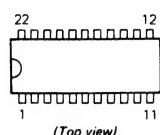
SR632D



AN78L05
NJM78L05A



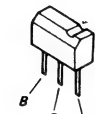
CX-7958
μPC1377C



TA7133P



2SC1652



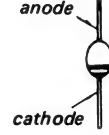
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EQA02-05F5
EQA02-06A5
EQA02-06D5
EQA02-10B5
ERD28-08
HZ6B2
RD10EN3
RD13EN2
RD24EB27
RD33EB2
RD33EB3
RD3.6E-N1
RD3.6E-N2
RD3.9EN2
RD4.7EN2
RD5.6EB2
RD5.6EBZ7S
RD5.6EN1
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RD5.6EN3
RD6.2EN1
RD6.2EN2
RD6.2EN3
RD6.2E-B



ERC84-009



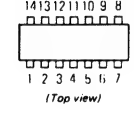
V19E
V30N



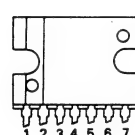
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TL4558P-B
μPC4558C



CXK1001P



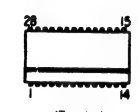
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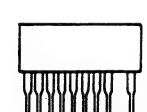
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2SC2610BK
2SD788



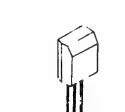
CX10026



DM-20



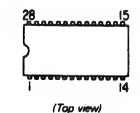
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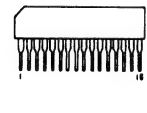
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2SC2688



CX20014A
CX20100
CX20125
CX526-025



LA3375



2SA1026



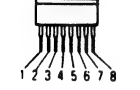
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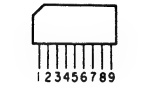
PH302B



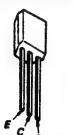
CX20106



LA7910



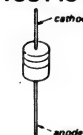
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2SA1115
2SC2458
2SC2603
2SC2669



2SD1134
2SD1406
2SD880



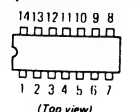
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1SS133
1SS148



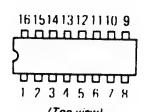
RH-1A
RU-2M
SIB01-02



CX20139
HD74LS05P
SN74LS05N
SN74LS09N
TC4066BP
TC4071BP
μPD4066BC
μPD4071BC



MC14053BCP
TC4052BP
TC4053BP
μPD4052BC
μPD4053BC
μPD6326C



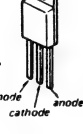
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2SC2785F



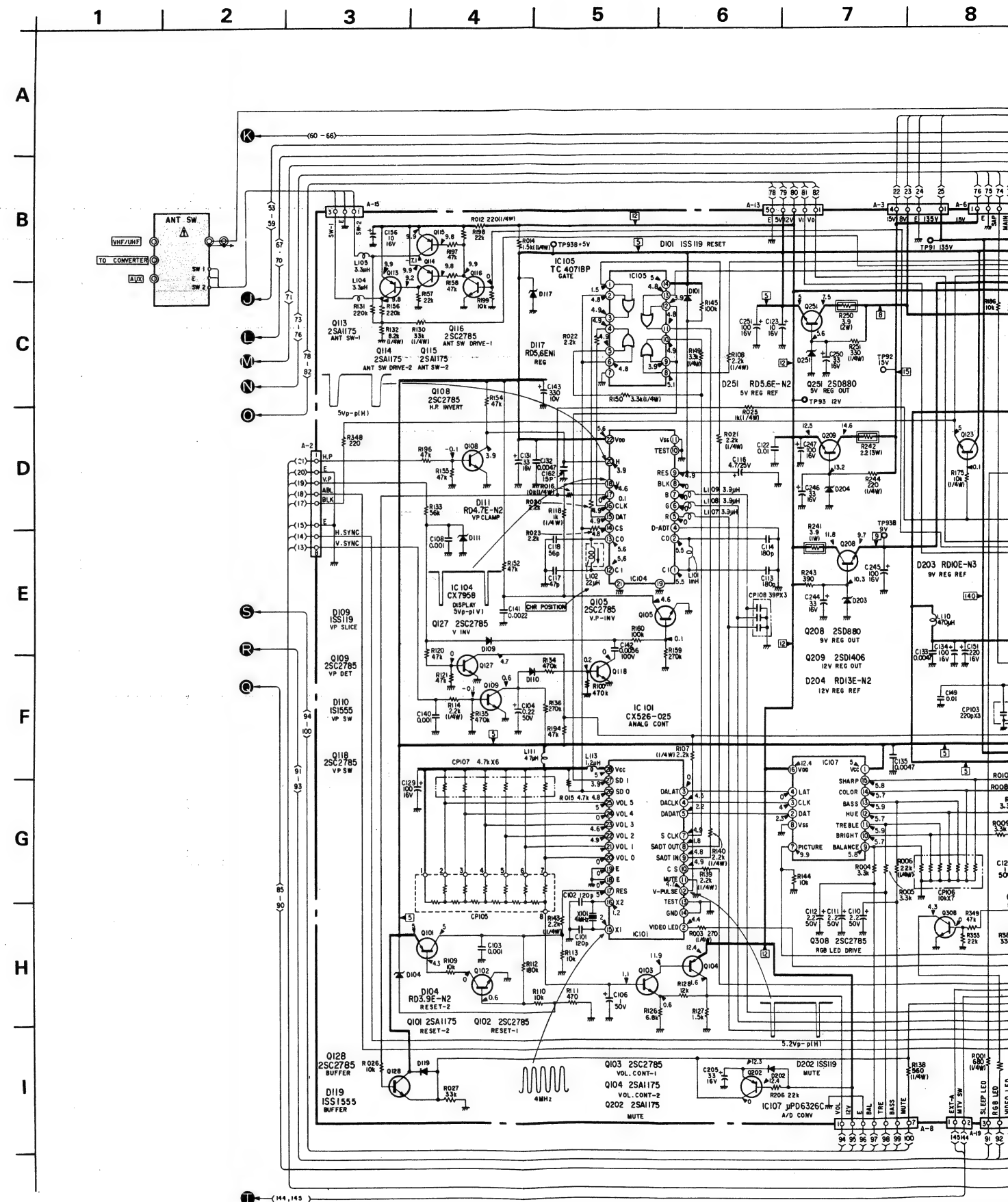
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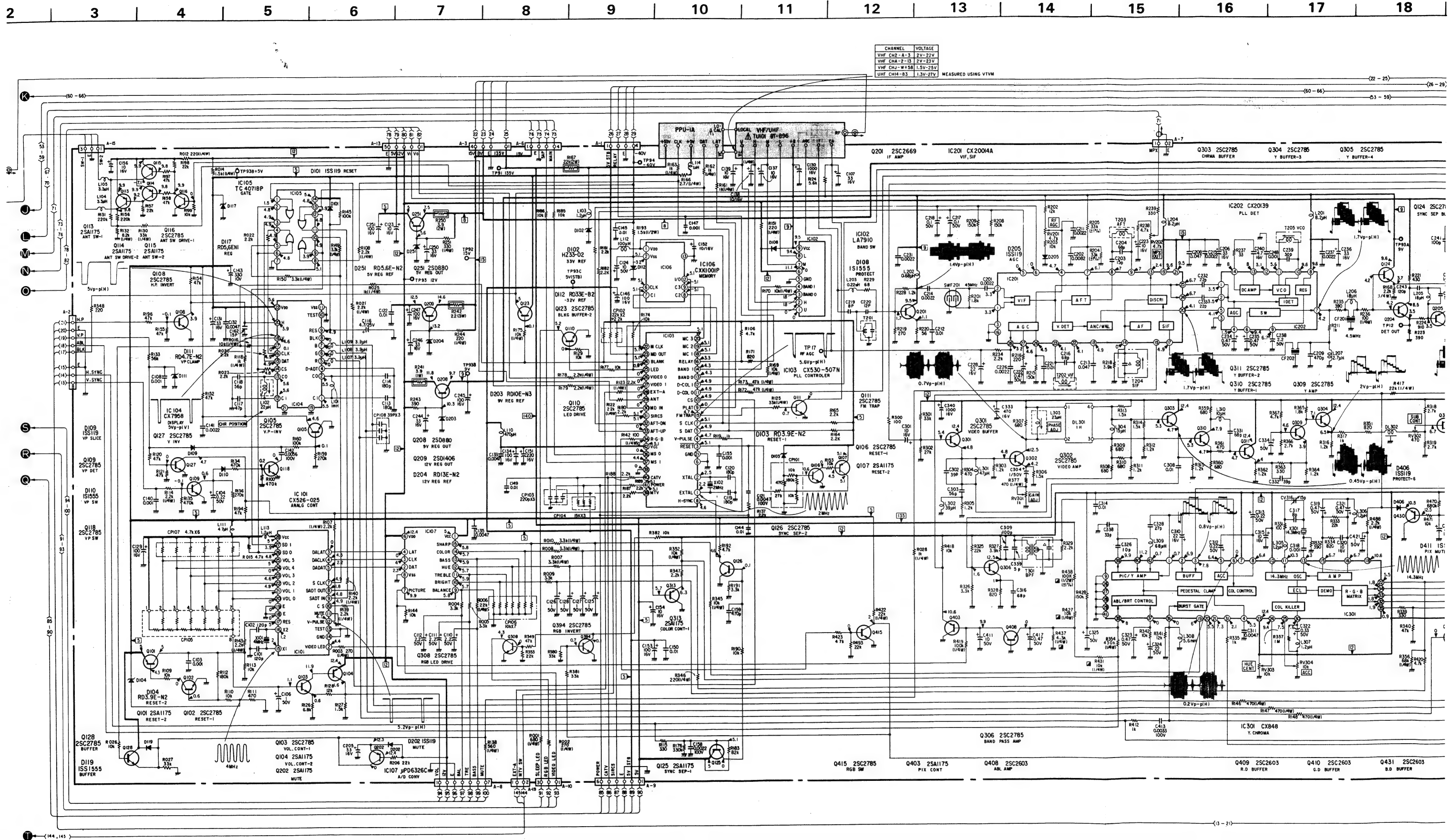


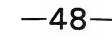
CTU-24S



S1VB10-S
S1VB20







1 2 3 4 5 6 7 8 9 10 10 11 12 13 14 15

A

B

C

D

E

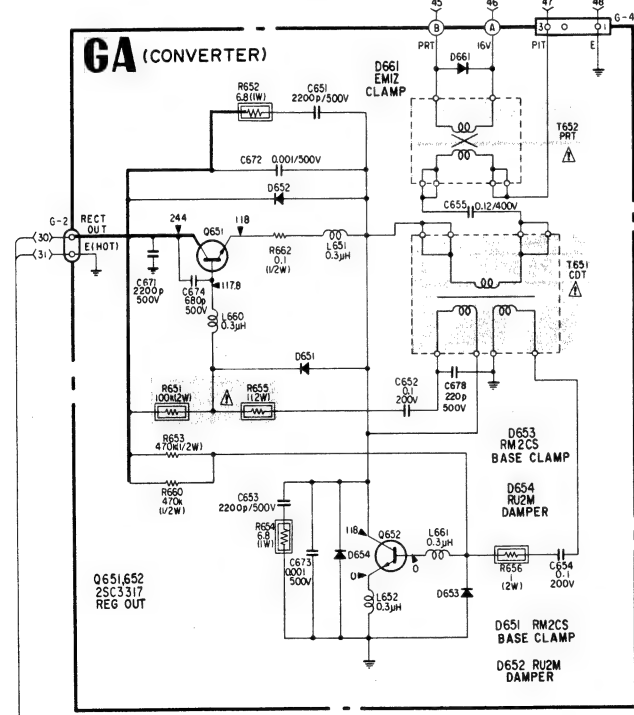
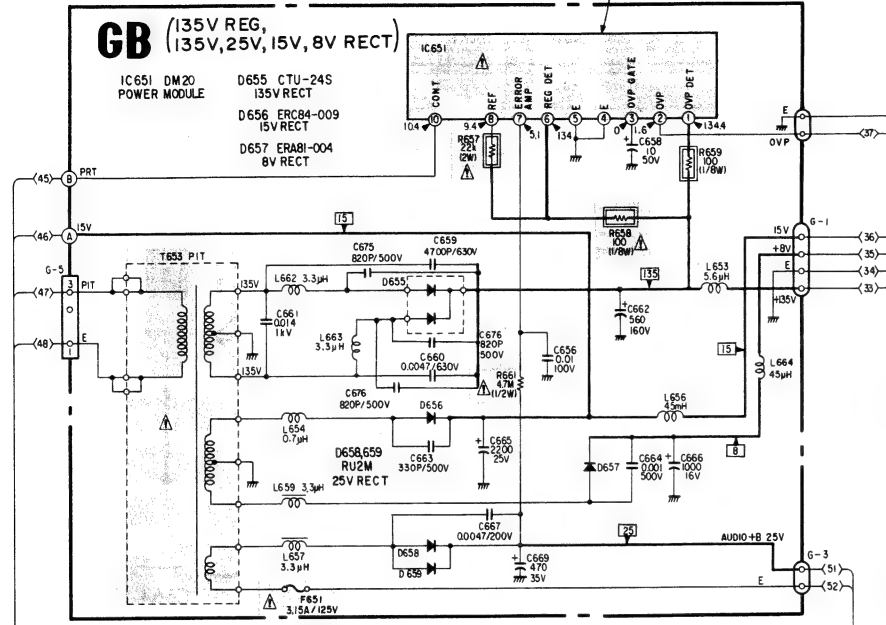
F

G

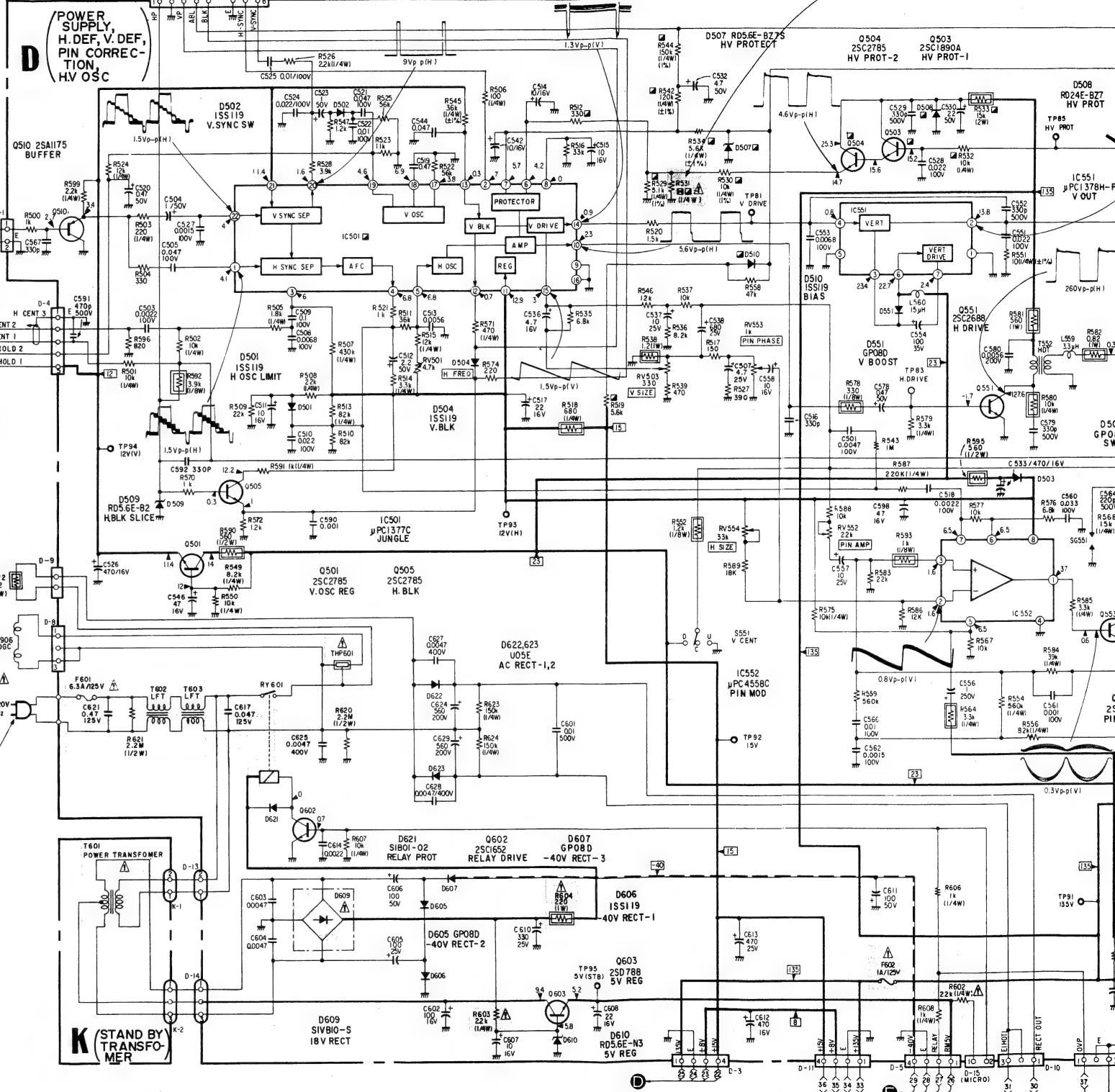
H

I

CAUTION
When replacing IC651, be sure to check the test point voltage value (TP91). Refer to the Safety Adjustments Section.



CAUTION
This set is equipped with a polarized ac power cord plug (one blade of the plug is wider than the other). When replacing the ac power cord, be sure to connect it with specified part number as shown in this diagram.



See page 25

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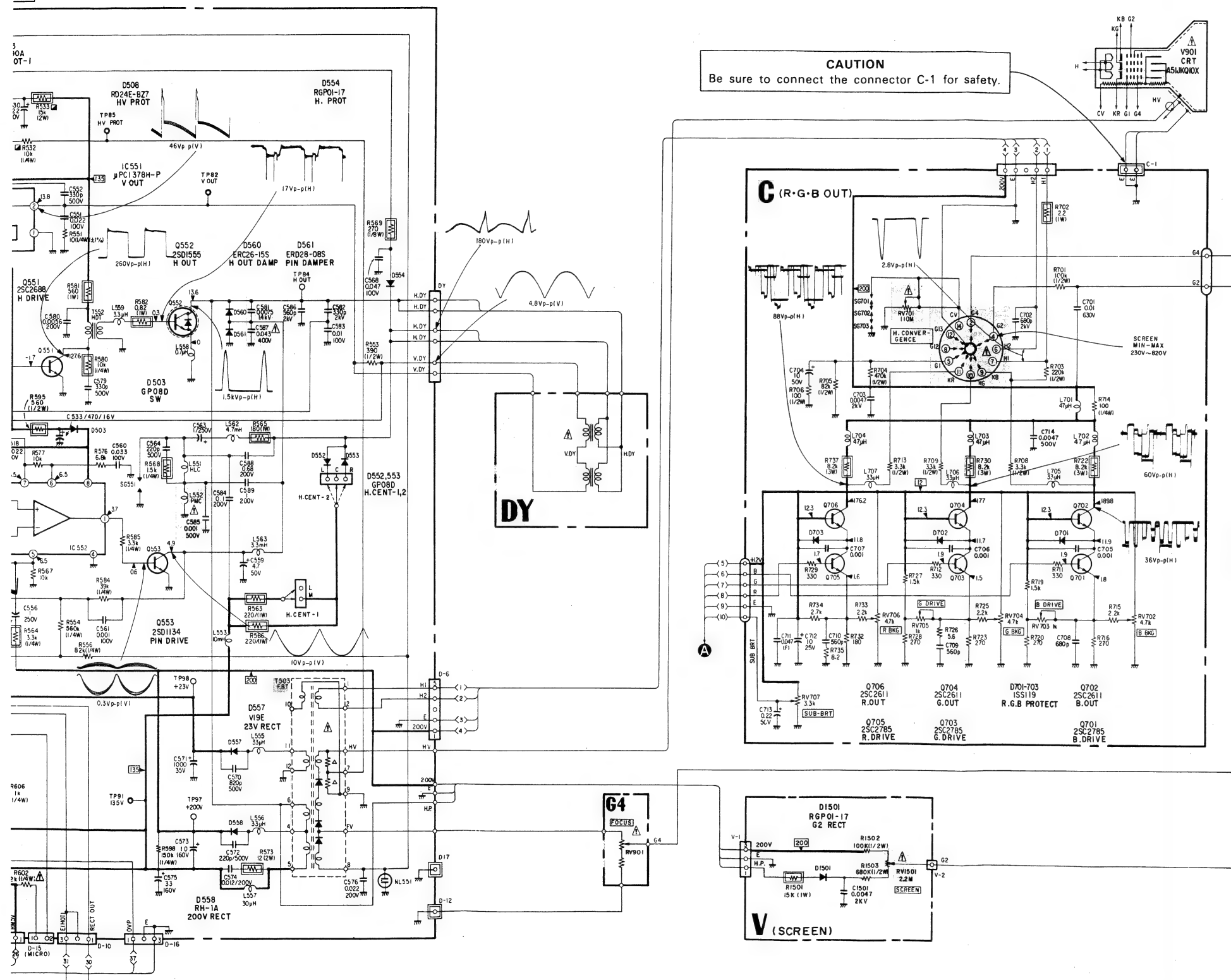
22

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Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

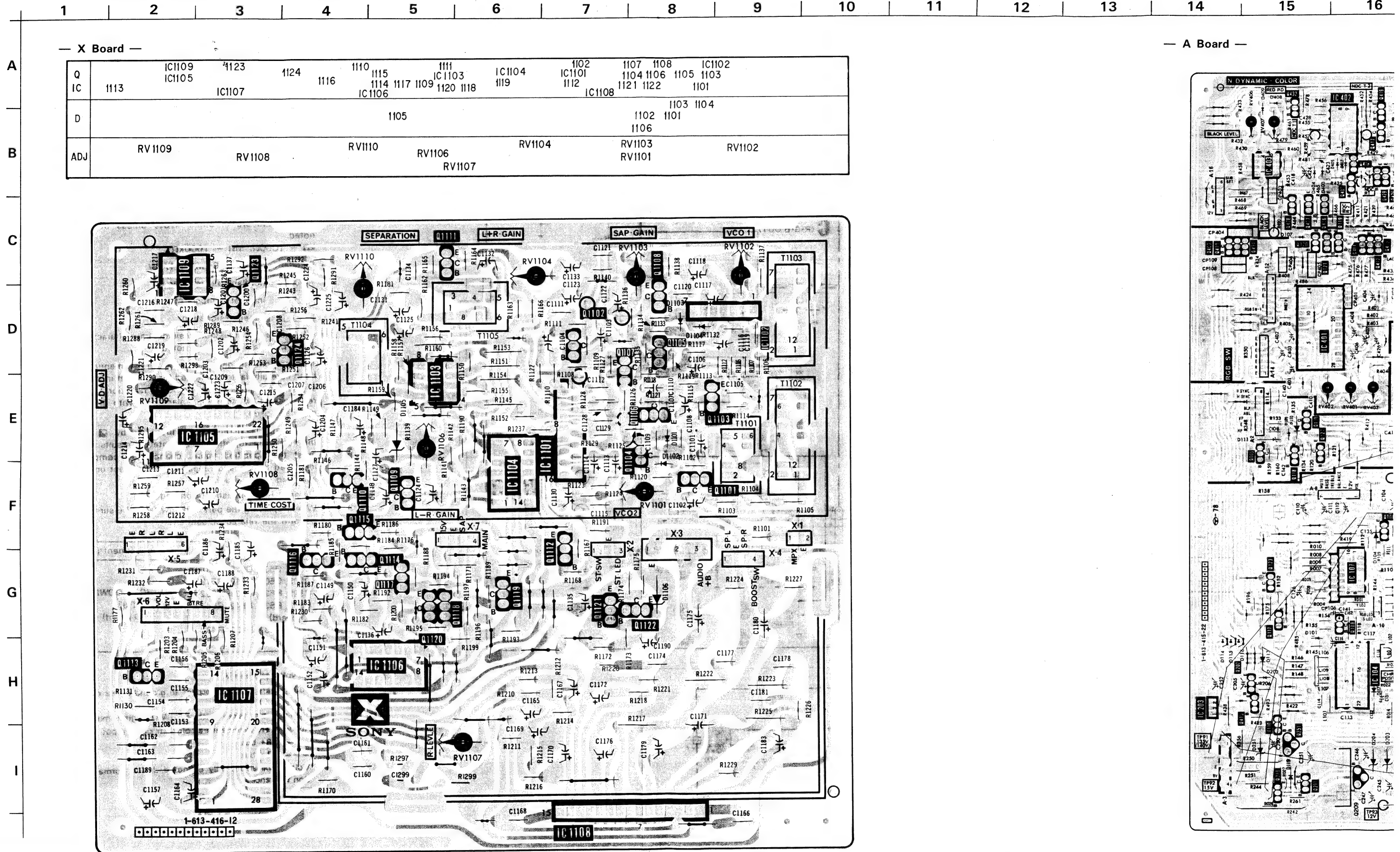
Note: Les composants identifiés par une trame et par une marque Δ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

- All Capacitors are in μF unless otherwise noted, pF: μF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/6W unless otherwise noted.
 $k\Omega = 1000\Omega$, $M\Omega = 1000k\Omega$
- Standard for the M Board is 1/4W.
- \square : nonflammable resistor.
- Δ : internal component.
- \square : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by \blacksquare in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by \blacksquare mark the necessary adjustments indicated. If results do not meet the specified value, change the component identified by \blacksquare and repeat the adjustment until the specified value is achieved.
(Refer to R531 adjustment on page 25.)
When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (\blacksquare)	Adjustment (\blacksquare)
D507, D508, D510, IC501 Q503, Q504, R512, R519 R529, R530, R531, R532 R533, R534, R542, R544 (D Board)	HOLD DOWN R531 (D Board)
R427, R431, R437, R438 (A Board)	

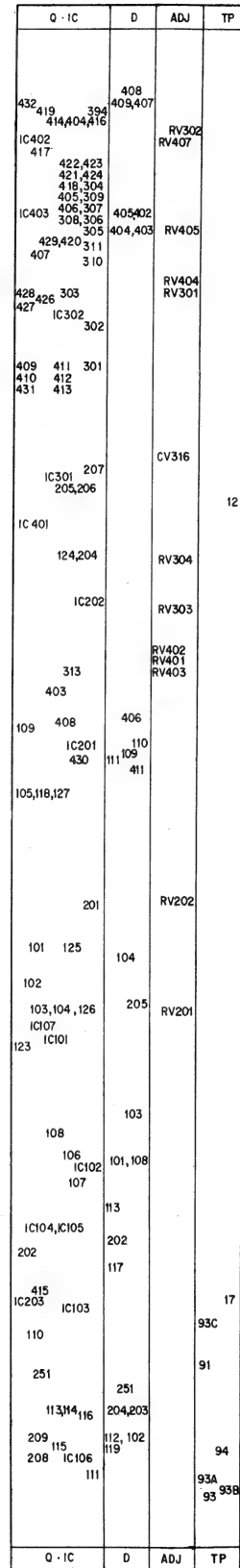
- All voltages are in V.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10M Ω digital multimeter.
- Readings are taken with a color-bar signal input.
- --- : B+ bus.
- --- : B- bus.
- Voltage variations may be noted due to normal production tolerances.
- \square : adjustment for repair.

5-5. PRINTED WIRING BOARDS — Conductor Side —



[CONVERTER]

30



The diagram is a schematic of the Sony F651 television set. It shows the internal layout of components, including the IC651 (integrated circuit), various capacitors (C651-C667), resistors (R651-R659), and inductors (L651-L659). The diagram also shows the 125V 31A5A tube, the 15V 1S4 tube, and the 8V 1S4 tube. The diagram is labeled with 'SONY' and 'F651'.

D [POWER SUPPLY, H DEF, V DEF,
PIN CORRECTION, H.V OSC]


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
SECTION 6
EXPLODED VIEWS

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

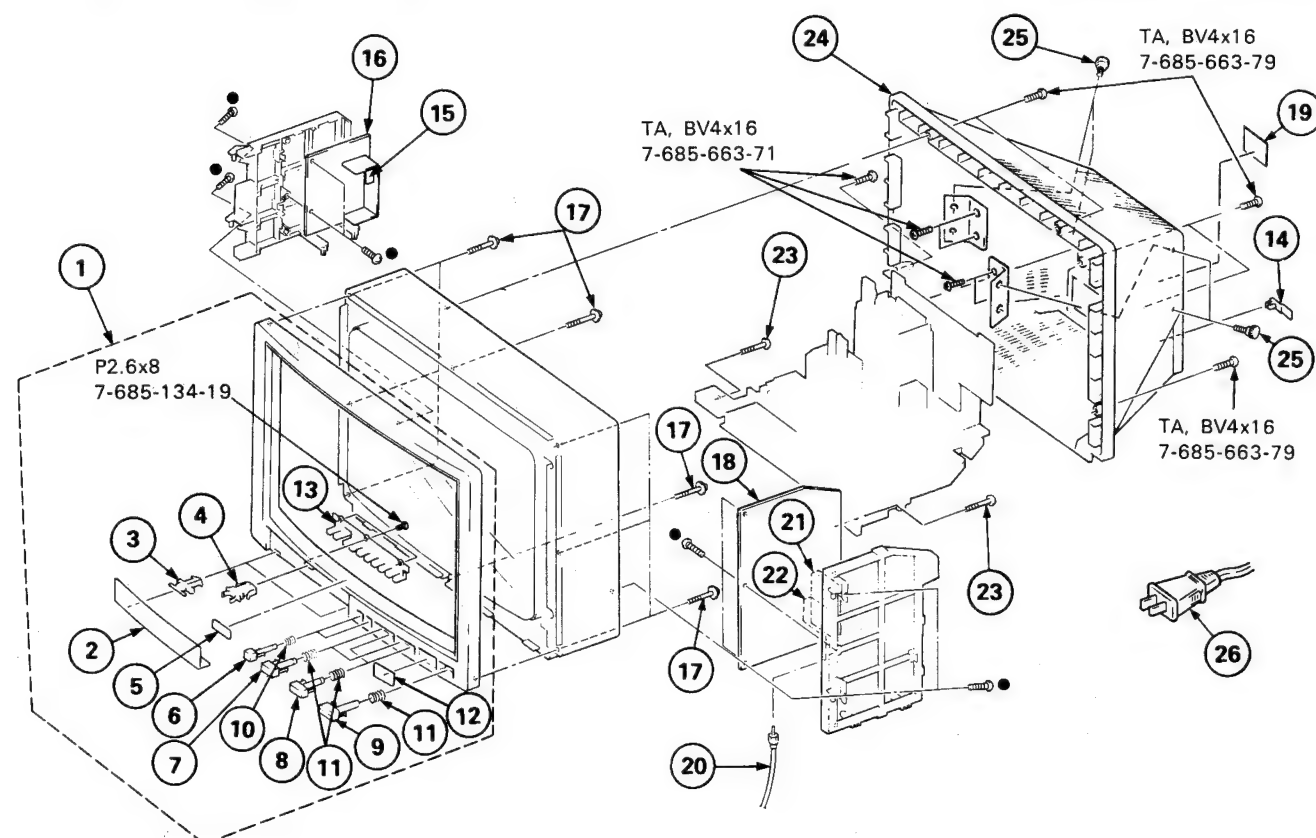
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. BACK COVER

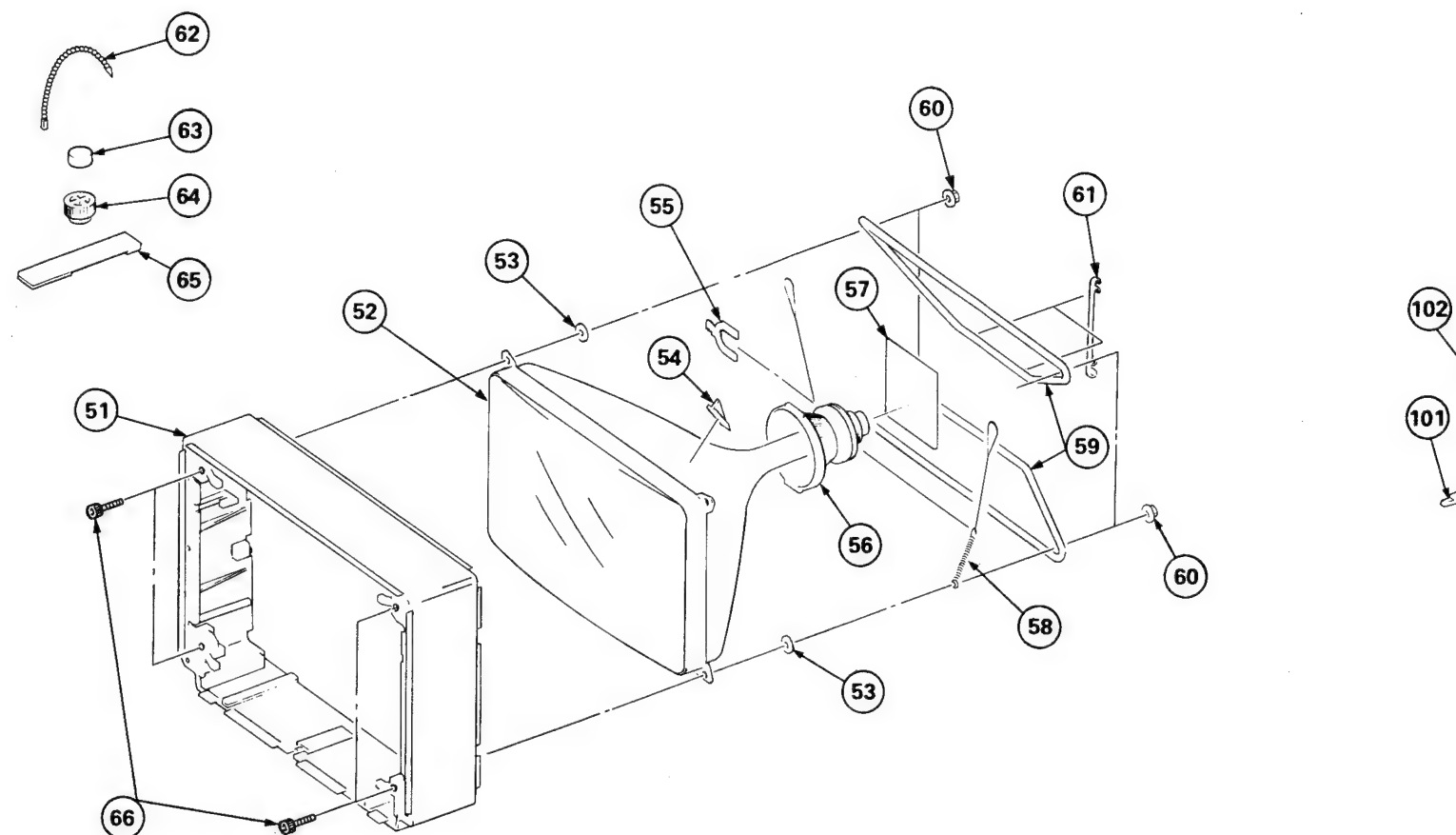
- : TA, BV3x12 7-685-648-79




No.	Part No.	Description
1	X-4374-212-6	BEZEL ASSY
2	X-4374-215-5	DOOR ASSY, CONTROL
3	3-662-365-00	SHAFT (S), DOOR
4	4-352-034-00	CATCHER, PUSH
5	4-374-115-01	EMBLEM, SONY
6	X-4374-201-2	BUTTON (A) ASSY
7	X-4374-202-2	BUTTON (B) ASSY
8	X-4374-203-2	BUTTON (C) ASSY
9	X-4374-210-1	BUTTON ASSY, POWER
10	3-571-847-00	SPRING, COMPRESSION
11	3-561-888-02	SPRING, COMPRESSION
12	*4-374-135-21	PLATE, TRANSPARENT
13	4-374-151-01	BUTTON, MULTI


Remark	No.	Part No.	Description	Remark
2-13	14	4-329-127-00	CLAMP, CORD	
	15	*1-614-651-11	XA BOARD	
	16	*A-1386-016-A	X BOARD COMPLETE	
	17	4-319-520-00	SCREW, SPECIAL (+PW4X30)	
	18	*A-1296-272-A	A BOARD COMPLETE	
	19	*4-383-717-01	LABEL, MODEL NUMBER	
	20	*1-557-009-00	CABLE, P-P	
	21	*1-463-470-00	TUNER, ET (BT-896)	
	22	*1-463-471-33	SYNTHESIZER UNIT, FREQUENCY	
	23	3-703-083-00	+ BV 3X25	
	24	X-4374-279-1	COVER ASSY, BACK	14,25
	25	X-4374-104-1	SCREW (B) ASSY, ORNAMENTAL	
	26	*1-557-269-11	CORD, POWER	

6-2. CRT



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	X-4374-211-5	CABINET ASSY	66	59	*1-426-224-12	COIL, DEMAGNETIZATION	
52	*8-736-952-05	CRT (AS10K10X)		60	4-306-034-00	FLANGE NUT, (B) 5MM	
53	4-373-615-02	WASHER, CRT POSITIONING		61	*4-369-319-00	BAND, COIL	
54	3-703-003-00	SPACER, DY		62	4-308-870-00	CLIP, LEAD WIRE	
55	1-452-277-00	MAGNET, BMC		63	1-452-032-00	MAGNET, DISK; 10MM Ø	
56	*1-451-256-12	DEFLECTION YOKE (SY-153)		64	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
57	*A-1330-561-A	C BOARD COMPLETE		65	X-4308-815-0	PERMALLOY ASSY, CONVERGENCE	
58	4-369-318-00	SPRING, TENSION		66	3-703-025-12	BOLT M5, HEXAGON-HEAD	

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

T1	T2	GA
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GB

- | <u>Remark</u> | <u>No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Remark</u> |
|---------------|------------|-----------------|-----------------------------|---------------|
| | 113 | A-1381-024-A | U BOARD COMPLETE | |
| | 114 | 4-374-240-01 | HOLDER, TERMINAL BOARD | |
| | 115 | 4-374-303-01 | RIVET, NYLON | |
| | 116 | A-1-417-125-11 | SELECTOR, ANTENNA | |
| | 117 | *3-644-407-00 | CLIP, AC WIRE E | |
| | 118 | A-4-022-115-01 | HOLDER, AC CORD | |
| | 119 | 3-845-490-00 | WASHER | |
| | 120 | A-1-230-786-12 | RESISTOR ASSY, HIGH-VOLTAGE | |
| | 121 | *1-613-478-11 | GA BOARD | |
| | 122 | *1-613-479-11 | GB BOARD | |
| | 123 | *1-613-477-21 | K BOARD | |
| | 124 | *1-615-280-11 | V BOARD | |

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		<u>COIL</u>
1653	1-421-459-00	COIL, CHOKE

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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
L654	1-407-365-00	COIL, CHOKE		A8	*1-566-059-11	PIN, CONNECTOR 7P	
L656	1-459-155-00	COIL (WITH CORE) 45UH		A9	*1-566-058-11	PIN, CONNECTOR 6P	
L657	1-407-780-00	COIL, SPOOK CHOKE		A10	*1-566-055-11	PIN, CONNECTOR 3P	
L659	1-407-687-00	MICRO INDUCTOR 3.3UH		A11	*1-566-056-11	PIN, CONNECTOR 4P	
L662	1-407-780-00	COIL, SPOOK CHOKE		A12	*1-566-060-11	PIN, CONNECTOR 8P	
L663	1-407-780-00	COIL, SPOOK CHOKE		A13	*1-566-057-11	PIN, CONNECTOR 5P	
L664	1-459-155-00	COIL (WITH CORE) 45UH		A14	*1-566-059-11	PIN, CONNECTOR 7P	
<u>RESISTOR</u>				A15	*1-566-055-11	PIN, CONNECTOR 3P	
R657	△ 1-206-696-61	METAL OXIDE	22K 5% 2W F	A16	*1-566-058-11	PIN, CONNECTOR 6P	
R658	△ 1-247-033-11	CARBON	100 5% 1/8W F	A19	*1-566-054-11	PIN, CONNECTOR 2P	
R659	1-247-033-11	CARBON	100 5% 1/8W F	<u>CAPACITOR</u>			
R661	△ 1-202-661-15	SOLID	4.7M 5% 1/2W	C101	1-102-816-00	CERAMIC	120PF 5% 50V
<u>TRANSFORMER</u>				C102	1-102-816-00	CERAMIC	120PF 5% 50V
T653	△ 1-421-699-11	PIT		C103	1-102-074-00	CERAMIC	0.001MF 10% 50V
*****				C104	1-123-447-00	ELECT	0.22MF 20% 50V
*1-611-717-11 N BOARD				C106	1-123-380-00	ELECT	1MF 20% 50V
*****				C107	1-123-318-00	ELECT	33MF 20% 16V
<u>CAPACITOR</u>				C108	1-101-001-00	CERAMIC	0.001MF 50V
C1	1-123-611-00	ELECT	1MF 20% 50V	C110	1-123-381-00	ELECT	2.2MF 20% 50V
C2	1-123-613-00	ELECT	3.3MF 20% 50V	C111	1-123-381-00	ELECT	2.2MF 20% 50V
C3	1-102-820-00	CERAMIC	330PF 5% 50V	C112	1-123-381-00	ELECT	2.2MF 20% 50V
C4	1-123-821-00	ELECT	47MF 20% 16V	C113	1-102-976-00	CERAMIC	180PF 5% 50V
<u>DIODE</u>				C114	1-102-976-00	CERAMIC	180PF 5% 50V
D1	8-719-110-32	DIODE PH302B		C116	1-123-369-00	ELECT	4.7MF 20% 25V
<u>IC</u>				C117	1-101-880-00	CERAMIC	47PF 5% 50V
IC1	8-759-602-54	IC CX20106A		C118	1-101-884-00	CERAMIC	56PF 5% 50V
<u>RESISTOR</u>				C119	1-102-976-00	CERAMIC	180PF 5% 50V
R1	1-247-799-00	CARBON	47 5% 1/6W	C120	1-102-976-00	CERAMIC	180PF 5% 50V
R2	1-247-775-00	CARBON	4.7 5% 1/6W	C121	1-106-188-00	MYLAR	0.0047MF 10% 100V
R3	1-214-784-00	METAL	200K 1% 1/4W	C122	1-101-004-00	CERAMIC	0.01MF 50V
R4	1-249-433-11	CARBON	22K 5% 1/6W	C123	1-123-356-00	ELECT	10MF 20% 16V
*****				C124	1-123-356-00	ELECT	10MF 20% 50V
*A-1296-272-A A BOARD COMPLETE				C125	1-123-380-00	ELECT	1MF 20% 50V
*****				C126	1-123-380-00	ELECT	1MF 20% 50V
△ 1-463-471-33 SYNTHESIZER UNIT, FREQUENCY				C127	1-123-380-00	ELECT	1MF 20% 50V
*1-551-382-00 CABLE P-P				C128	1-123-380-00	ELECT	1MF 20% 50V
*4-341-966-00 CASE, SHIELD, D.I.				C129	1-119-129-00	ELECT	100MF 16V
<u>CONNECTOR</u>				C130	1-123-324-00	ELECT	1000MF 20% 16V
A1	*1-566-056-11	PIN, CONNECTOR 4P		C131	1-123-318-00	ELECT	33MF 20% 16V
A2	*1-566-060-11	PIN, CONNECTOR 8P		C132	1-101-003-00	CERAMIC	0.0047MF 50V
A3	*1-508-766-00	4P PLUG (M)		C133	1-101-003-00	CERAMIC	0.0047MF 50V
A6	*1-566-056-11	PIN, CONNECTOR 4P		C134	1-123-333-00	ELECT	100MF 20% 16V
A7	*1-566-054-11	PIN, CONNECTOR 2P		C135	1-101-003-00	CERAMIC	0.0047MF 50V
				C137	1-123-356-00	ELECT	10MF 20% 16V
				C138	1-123-356-00	ELECT	10MF 20% 16V
				C139	1-123-356-00	ELECT	10MF 20% 16V
				C140	1-101-001-00	CERAMIC	0.001MF 50V
				C141	1-101-002-00	CERAMIC	0.0022MF 50V
				C142	1-106-190-00	MYLAR	0.0056MF 10% 100V
				C143	1-123-309-00	ELECT	330MF 20% 10V
				C144	1-101-004-00	CERAMIC	0.01MF 50V
				C145	1-101-004-00	CERAMIC	0.01MF 50V

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref.No.	Part No.	Description			Remark	Ref.No.	Part No.	Description			Remark
C146	1-123-333-00	ELECT	100MF	20%	16V	C247	1-123-333-00	ELECT	100MF	20%	16V
C147	1-101-001-00	CERAMIC	0.001MF		50V	C248	1-102-074-00	CERAMIC	0.001MF	10%	50V
C149	1-101-004-00	CERAMIC	0.01MF		50V	C249	1-123-380-00	ELECT	1MF	20%	50V
C150	1-101-004-00	CERAMIC	0.01MF		50V	C250	1-123-318-00	ELECT	33MF	20%	16V
C151	1-119-135-00	ELECT	220MF		16V	C251	1-123-333-00	ELECT	100MF	20%	16V
C152	1-123-356-00	ELECT	10MF	20%	16V	C252	1-123-306-00	ELECT	47MF	20%	6.3V
C153	1-123-333-00	ELECT	100MF	20%	16V	C301	1-123-356-00	ELECT	10MF	20%	16V
C154	1-123-356-00	ELECT	10MF	20%	16V	C302	1-102-965-00	CERAMIC	39PF	5%	50V
C155	1-161-323-00	CERAMIC	0.001MF	10%	50V	C303	1-101-884-00	CERAMIC	56PF	5%	50V
C156	1-123-356-00	ELECT	10MF	20%	16V	C304	1-123-380-00	ELECT	1MF	20%	50V
C157	1-123-380-00	ELECT	1MF	20%	50V	C305	1-123-380-00	ELECT	1MF	20%	50V
C158	1-106-180-00	MYLAR	0.0022MF	10%	100V	C306	1-123-356-00	ELECT	10MF	20%	25V
C159	1-102-824-00	CERAMIC	470PF	5%	50V	C308	1-102-129-00	CERAMIC	0.01MF	10%	50V
C162	1-102-951-00	CERAMIC	15PF	5%	50V	C309	1-102-973-00	CERAMIC	100PF	5%	50V
C201	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C310	1-123-330-00	ELECT	22MF	20%	16V
C202	1-102-128-00	CERAMIC	0.0082MF	10%	50V	C311	1-161-047-00	CERAMIC	0.0047MF	10%	50V
C203	1-102-851-00	CERAMIC	15PF	5%	50V	C312	1-123-447-00	ELECT	0.22MF	20%	50V
C204	1-102-525-00	CERAMIC	68PF	5%	50V	C313	1-123-447-00	ELECT	0.22MF	20%	50V
C205	1-123-318-00	ELECT	33MF	20%	16V	C314	1-101-004-00	CERAMIC	0.01MF	50V	
C206	1-123-318-00	ELECT	33MF	20%	16V	C315	1-123-356-00	ELECT	10MF	20%	16V
C207	1-101-884-00	CERAMIC	56PF	5%	50V	C316	1-101-888-00	CERAMIC	68PF	5%	50V
C208	1-161-059-00	CERAMIC	0.047MF	10%	25V	C317	1-102-865-00	CERAMIC	8PF	0.5PF	50V
C209	1-102-824-00	CERAMIC	470PF	5%	50V	C318	1-102-074-00	CERAMIC	0.001MF	10%	50V
C211	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C319	1-123-379-00	ELECT	0.47MF	20%	50V
C212	1-101-004-00	CERAMIC	0.01MF		50V	C320	1-121-806-00	ELECT	10MF		16V
C213	1-161-059-00	CERAMIC	0.047MF	10%	25V	C321	1-123-379-00	ELECT	0.47MF	20%	50V
C214	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C322	1-123-286-00	ELECT	0.33MF	20%	50V
C215	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C323	1-123-379-00	ELECT	0.47MF	20%	50V
C216	1-102-525-00	CERAMIC	68PF	5%	50V	C324	1-123-357-00	ELECT	22MF	20%	50V
C217	1-123-586-00	ELECT	0.1MF	20%	50V	C325	1-123-380-00	ELECT	1MF	20%	50V
C218	1-123-586-00	ELECT	0.1MF	20%	50V	C326	1-102-947-00	CERAMIC	10PF	5%	50V
C219	1-102-634-11	CERAMIC	8PF	0.5PF	50V	C328	1-161-264-00	CERAMIC	27PF	5%	50V
C220	1-102-637-00	CERAMIC	12PF	5%	50V	C330	1-123-333-00	ELECT	100MF	20%	16V
C221	1-161-013-00	CERAMIC	0.01MF	10%	25V	C331	1-101-888-00	CERAMIC	68PF	5%	50V
C222	1-123-379-00	ELECT	0.47MF	20%	50V	C332	1-102-965-00	CERAMIC	39PF	5%	50V
C223	1-123-356-00	ELECT	10MF	20%	16V	C333	1-123-323-00	ELECT	470MF	20%	16V
C226	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C334	1-123-380-00	ELECT	1MF	20%	50V
C228	1-123-330-00	ELECT	22MF	20%	16V	C338	1-102-963-00	CERAMIC	33PF	5%	50V
C231	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C339	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C232	1-102-959-00	CERAMIC	22PF	5%	50V	C340	1-123-324-00	ELECT	1000MF	20%	16V
C233	1-102-959-00	CERAMIC	22PF	5%	50V	C341	1-102-953-00	CERAMIC	18PF	5%	50V
C234	1-123-379-00	ELECT	0.47MF	20%	50V	C401	1-123-356-00	ELECT	10MF	20%	16V
C235	1-123-379-00	ELECT	0.47MF	20%	50V	C402	1-123-356-00	ELECT	10MF	20%	16V
C236	1-123-318-00	ELECT	33MF	20%	16V	C403	1-123-356-00	ELECT	10MF	20%	16V
C237	1-102-121-00	CERAMIC	0.0022MF	10%	50V	C404	1-123-324-00	ELECT	1000MF	20%	16V
C238	1-123-381-00	ELECT	2.2MF	20%	50V	C405	1-101-003-00	CERAMIC	0.0047MF		50V
C239	1-102-752-61	CERAMIC	30PF	5%	50V	C406	1-123-379-00	ELECT	0.47MF	20%	50V
C240	1-121-257-00	ELECT	4.7MF		16V	C407	1-123-379-00	ELECT	0.47MF	20%	50V
C241	1-102-973-00	CERAMIC	100PF	5%	50V	C408	1-123-379-00	ELECT	0.47MF	20%	50V
C243	1-102-816-00	CERAMIC	120PF	5%	50V	C410	1-101-004-00	CERAMIC	0.01MF		50V
C244	1-123-318-00	ELECT	33MF	20%	16V	C411	1-123-356-00	ELECT	10MF	20%	50V
C245	1-123-333-00	ELECT	100MF	20%	16V	C412	1-123-369-00	ELECT	4.7MF	20%	50V
C246	1-123-318-00	ELECT	33MF	20%	16V	C413	1-106-184-00	MYLAR	0.0033MF	10%	100V

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Ref.No.	Part No.	Description
<u>TRANSISTOR</u>		
Q101	8-729-117-54	TRANSISTOR 2SA1175
Q102	8-729-178-54	TRANSISTOR 2SC2785
Q103	8-729-178-54	TRANSISTOR 2SC2785
Q104	8-729-117-54	TRANSISTOR 2SA1175
Q105	8-729-178-54	TRANSISTOR 2SC2785
Q106	8-729-178-54	TRANSISTOR 2SC2785
Q107	8-729-117-54	TRANSISTOR 2SA1175
Q108	8-729-178-54	TRANSISTOR 2SC2785
Q109	8-729-178-54	TRANSISTOR 2SC2785
Q110	8-729-178-54	TRANSISTOR 2SC2785
Q111	8-729-178-54	TRANSISTOR 2SC2785
Q113	8-729-117-54	TRANSISTOR 2SA1175
Q114	8-729-117-54	TRANSISTOR 2SA1175
Q115	8-729-117-54	TRANSISTOR 2SA1175
Q116	8-729-178-54	TRANSISTOR 2SC2785
Q118	8-729-178-54	TRANSISTOR 2SC2785
Q123	8-729-178-54	TRANSISTOR 2SC2785
Q124	8-729-178-54	TRANSISTOR 2SC2785
Q125	8-729-117-54	TRANSISTOR 2SA1175
Q126	8-729-178-54	TRANSISTOR 2SC2785
Q127	8-729-178-54	TRANSISTOR 2SC2785
Q128	8-729-178-54	TRANSISTOR 2SC2785
Q201	8-729-266-93	TRANSISTOR 2SC2669
Q202	8-729-117-54	TRANSISTOR 2SA1175
Q204	8-729-178-54	TRANSISTOR 2SC2785
Q205	8-729-117-54	TRANSISTOR 2SA1175
Q206	8-729-178-54	TRANSISTOR 2SC2785
Q207	8-729-178-54	TRANSISTOR 2SC2785
Q208	8-729-288-02	TRANSISTOR 2SD880
Q209	8-729-201-78	TRANSISTOR 2SD1406
Q251	8-729-288-02	TRANSISTOR 2SD880
Q301	8-729-178-54	TRANSISTOR 2SC2785
Q302	8-729-178-54	TRANSISTOR 2SC2785
Q303	8-729-178-54	TRANSISTOR 2SC2785
Q304	8-729-178-54	TRANSISTOR 2SC2785
Q305	8-729-178-54	TRANSISTOR 2SC2785
Q306	8-729-178-54	TRANSISTOR 2SC2785
Q308	8-729-178-54	TRANSISTOR 2SC2785
Q309	8-729-178-54	TRANSISTOR 2SC2785
Q310	8-729-178-54	TRANSISTOR 2SC2785
Q311	8-729-178-54	TRANSISTOR 2SC2785
Q313	8-729-117-54	TRANSISTOR 2SA1175
Q394	8-729-178-54	TRANSISTOR 2SC2785
Q403	8-729-117-54	TRANSISTOR 2SA1175
Q404	8-729-117-54	TRANSISTOR 2SA1175
Q405	8-729-117-54	TRANSISTOR 2SA1175
Q406	8-729-117-54	TRANSISTOR 2SA1175
Q407	8-729-117-54	TRANSISTOR 2SA1175
Q408	8-729-600-27	TRANSISTOR 2SC634SP
Q409	8-729-600-27	TRANSISTOR 2SC634SP
Q410	8-729-600-27	TRANSISTOR 2SC634SP


Remark	Ref.No.	Part No.	Description	Remark
	Q411	8-729-117-54	TRANSISTOR 2SA1175	
	Q412	8-729-117-54	TRANSISTOR 2SA1175	
	Q413	8-729-117-54	TRANSISTOR 2SA1175	
	Q414	8-729-117-54	TRANSISTOR 2SA1175	
	Q415	8-729-178-54	TRANSISTOR 2SC2785	
	Q416	8-729-117-54	TRANSISTOR 2SA1175	
	Q417	8-729-178-54	TRANSISTOR 2SC2785	
	Q418	8-729-178-54	TRANSISTOR 2SC2785	
	Q419	8-729-178-54	TRANSISTOR 2SC2785	
	Q420	8-729-117-54	TRANSISTOR 2SA1175	
	Q421	8-729-117-54	TRANSISTOR 2SA1175	
	Q422	8-729-117-54	TRANSISTOR 2SA1175	
	Q423	8-729-117-54	TRANSISTOR 2SA1175	
	Q424	8-729-117-54	TRANSISTOR 2SA1175	
	Q426	8-729-600-27	TRANSISTOR 2SC634SP	
	Q427	8-729-600-27	TRANSISTOR 2SC634SP	
	Q428	8-729-600-27	TRANSISTOR 2SC634SP	
	Q429	8-729-117-54	TRANSISTOR 2SA1175	
	Q430	8-729-117-54	TRANSISTOR 2SA1175	
	Q431	8-729-600-27	TRANSISTOR 2SC634SP	
	Q432	8-729-117-54	TRANSISTOR 2SA1175	
	RESISTOR			
	JW153	1-249-437-11	CARBON 47K 5%	1/6W
	JW154	1-249-437-11	CARBON 47K 5%	1/6W
	R001	1-247-711-11	CARBON 680 5%	1/4W
	R002	1-247-705-11	CARBON 270 5%	1/4W
	R003	1-247-705-11	CARBON 270 5%	1/4W
	R004	1-249-423-11	CARBON 3.3K 5%	1/6W
	R005	1-249-423-11	CARBON 3.3K 5%	1/6W
	R006	1-249-462-11	CARBON 22K 5%	1/4W
	R007	1-247-719-11	CARBON 3.3K 5%	1/4W
	R008	1-247-719-11	CARBON 3.3K 5%	1/4W
	R009	1-249-423-11	CARBON 3.3K 5%	1/6W
	R010	1-247-719-11	CARBON 3.3K 5%	1/4W
	R012	1-246-457-00	CARBON 220 5%	1/4W
	R014	1-247-715-11	CARBON 1.5K 5%	1/4W
	R015	1-247-847-00	CARBON 4.7K 5%	1/6W
	R016	1-247-725-11	CARBON 10K 5%	1/4W
	R020	1-247-839-00	CARBON 2.2K 5%	1/6W
	R021	1-247-717-11	CARBON 2.2K 5%	1/4W
	R022	1-247-839-00	CARBON 2.2K 5%	1/6W
	R023	1-247-839-00	CARBON 2.2K 5%	1/6W
	R025	1-247-713-11	CARBON 1K 5%	1/4W
	R026	1-249-429-11	CARBON 10K 5%	1/6W
	R027	1-249-435-11	CARBON 33K 5%	1/6W
	R028	1-247-713-11	CARBON 1K 5%	1/4W
	R100	1-247-895-00	CARBON 470K 5%	1/6W
	R106	1-249-425-11	CARBON 4.7K 5%	1/6W
	R107	1-247-717-11	CARBON 2.2K 5%	1/4W
	R108	1-247-717-11	CARBON 2.2K 5%	1/4W
	R109	1-249-429-11	CARBON 10K 5%	1/6W
	R110	1-249-429-11	CARBON 10K 5%	1/6W
	R111	1-247-823-00	CARBON 470 5%	1/6W
	R112	1-247-885-00	CARBON 180K 5%	1/6W


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Ref.No.	Part No.	Description				Remark	Ref.No.	Part No.	Description				Remark
R113	1-249-429-11	CARBON	10K	5%	1/6W		R169	1-247-725-11	CARBON	10K	5%	1/4W	
R114	1-247-717-11	CARBON	2.2K	5%	1/4W		R170	1-247-725-11	CARBON	10K	5%	1/4W	
R115	1-247-819-00	CARBON	330	5%	1/6W		R171	1-247-829-00	CARBON	820	5%	1/6W	
R118	1-247-713-11	CARBON	1K	5%	1/4W		R172	1-249-465-11	CARBON	47K	5%	1/4W	
R119	1-249-417-11	CARBON	1K	5%	1/6W		R173	1-249-465-11	CARBON	47K	5%	1/4W	
R120	1-249-437-11	CARBON	47K	5%	1/6W		R174	1-249-429-11	CARBON	10K	5%	1/6W	
R121	1-249-437-11	CARBON	47K	5%	1/6W		R175	1-247-725-11	CARBON	10K	5%	1/4W	
R122	1-249-462-11	CARBON	22K	5%	1/4W		R176	1-247-891-00	CARBON	330K	5%	1/6W	
R123	1-247-717-11	CARBON	2.2K	5%	1/4W		R177	1-249-429-11	CARBON	10K	5%	1/6W	
R124	1-247-849-00	CARBON	5.6K	5%	1/6W		R178	1-247-717-11	CARBON	2.2K	5%	1/4W	
R125	1-247-726-11	CARBON	33K	5%	1/4W		R179	1-247-717-11	CARBON	2.2K	5%	1/4W	
R126	1-247-851-00	CARBON	6.8K	5%	1/6W		R180	1-247-839-00	CARBON	2.2K	5%	1/6W	
R127	1-249-419-11	CARBON	1.5K	5%	1/6W		R181	1-247-839-00	CARBON	2.2K	5%	1/6W	
R128	1-247-857-00	CARBON	12K	5%	1/6W		R182	1-247-839-00	CARBON	2.2K	5%	1/6W	
R129	1-249-429-11	CARBON	10K	5%	1/6W		R183	1-249-440-11	CARBON	82K	5%	1/6W	
R130	1-247-726-11	CARBON	33K	5%	1/4W		R185	1-249-429-11	CARBON	10K	5%	1/6W	
R131	1-247-887-00	CARBON	220K	5%	1/6W		R186	1-249-429-11	CARBON	10K	5%	1/6W	
R132	1-247-724-11	CARBON	8.2K	5%	1/4W		R187	1-247-839-00	CARBON	2.2K	5%	1/6W	
R133	1-247-873-00	CARBON	56K	5%	1/6W		R188	1-247-839-00	CARBON	2.2K	5%	1/6W	
R134	1-247-895-00	CARBON	470K	5%	1/6W		R189	1-247-839-00	CARBON	2.2K	5%	1/6W	
R135	1-247-895-00	CARBON	470K	5%	1/6W		R190	1-249-429-11	CARBON	10K	5%	1/6W	
R136	1-247-889-00	CARBON	270K	5%	1/6W		R191	1-249-423-11	CARBON	3.3K	5%	1/6W	
R137	1-247-839-00	CARBON	2.2K	5%	1/6W		R192	1-249-425-11	CARBON	4.7K	5%	1/6W	
R138	1-247-710-11	CARBON	560	5%	1/4W		R193	1-244-877-51	CARBON	1.5K	5%	1/2W	
R139	1-247-717-11	CARBON	2.2K	5%	1/4W		R194	1-249-437-11	CARBON	47K	5%	1/6W	
R140	1-247-717-11	CARBON	2.2K	5%	1/4W		R196	1-249-437-11	CARBON	47K	5%	1/6W	
R142	1-246-449-25	CARBON	100	5%	1/4W		R197	1-249-437-11	CARBON	47K	5%	1/6W	
R143	1-247-717-11	CARBON	2.2K	5%	1/4W		R198	1-249-433-11	CARBON	22K	5%	1/6W	
R144	1-249-429-11	CARBON	10K	5%	1/6W		R199	1-249-429-11	CARBON	10K	5%	1/6W	
R145	1-249-441-11	CARBON	100K	5%	1/6W		R201	1-249-420-11	CARBON	1.8K	5%	1/6W	
R146	1-246-465-25	CARBON	470	5%	1/4W		R202	1-247-857-00	CARBON	12K	5%	1/6W	
R147	1-246-465-25	CARBON	470	5%	1/4W		R203	1-249-429-11	CARBON	10K	5%	1/6W	
R148	1-246-465-25	CARBON	470	5%	1/4W		R204	1-215-457-00	METAL	33K	1%	1/6W	
R149	1-247-719-11	CARBON	3.3K	5%	1/4W		R205	1-215-457-00	METAL	33K	1%	1/6W	
R150	1-247-719-11	CARBON	3.3K	5%	1/4W		R206	1-249-433-11	CARBON	22K	5%	1/6W	
R151	1-246-457-00	CARBON	220	5%	1/4W		R208	1-247-883-00	CARBON	150K	5%	1/6W	
R152	1-249-437-11	CARBON	47K	5%	1/6W		R209	1-247-883-00	CARBON	150K	5%	1/6W	
R153	1-249-429-11	CARBON	10K	5%	1/6W		R211	1-249-417-11	CARBON	1K	5%	1/6W	
R154	1-249-437-11	CARBON	47K	5%	1/6W		R215	1-247-883-00	CARBON	150K	5%	1/6W	
R155	1-249-437-11	CARBON	47K	5%	1/6W		R216	1-247-815-00	CARBON	220	5%	1/6W	
R156	1-247-887-00	CARBON	220K	5%	1/6W		R218	1-247-845-00	CARBON	3.9K	5%	1/6W	
R157	1-249-433-11	CARBON	22K	5%	1/6W		R219	1-247-817-00	CARBON	270	5%	1/6W	
R158	1-249-437-11	CARBON	47K	5%	1/6W		R220	1-247-801-00	CARBON	56	5%	1/6W	
R159	1-247-889-00	CARBON	270K	5%	1/6W		R221	1-247-822-00	CARBON	430	5%	1/6W	
R160	1-249-441-11	CARBON	100K	5%	1/6W		R223	1-247-821-00	CARBON	390	5%	1/6W	
R161	1-247-713-11	CARBON	1K	5%	1/4W		R224	1-247-830-00	CARBON	910	5%	1/6W	
R162	1-247-713-11	CARBON	1K	5%	1/4W		R225	1-249-415-11	CARBON	680	5%	1/6W	
R163	1-247-713-11	CARBON	1K	5%	1/4W		R226	1-249-405-11	CARBON	100	5%	1/6W	
R164	1-247-839-00	CARBON	2.2K	5%	1/6W		R227	1-249-415-11	CARBON	680	5%	1/6W	
R165	1-247-839-00	CARBON	2.2K	5%	1/6W		R228	1-247-833-00	CARBON	1.2K	5%	1/6W	
R166	1-249-452-11	CARBON	2.7	5%	1/4W		R229	1-247-803-00	CARBON	68	5%	1/6W	
R167	1-206-696-00	METAL OXIDE	22K	5%	2W	F	R230	1-249-423-11	CARBON	3.3K	5%	1/6W	
R168	1-247-717-11	CARBON	2.2K	5%	1/4W		R231	1-247-846-00	CARBON	4.3K	5%	1/6W	

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Ref.No.	Part No.	Description			Remark	Ref.No.	Part No.	Description			Remark
R232	1-247-851-00	CARBON	6.8K	5%	1/6W	R341	1-247-857-00	CARBON	12K	5%	1/6W
R234	1-247-839-00	CARBON	2.2K	5%	1/6W	R342	1-249-429-11	CARBON	10K	5%	1/6W
R235	1-247-821-00	CARBON	390	5%	1/6W	R345	1-247-725-11	CARBON	10K	5%	1/4W
R236	1-246-449-25	CARBON	100	5%	1/4W	R346	1-246-457-00	CARBON	220	5%	1/4W
R237	1-247-795-00	CARBON	33	5%	1/6W	R347	1-247-839-00	CARBON	2.2K	5%	1/6W
R238	1-249-425-11	CARBON	4.7K	5%	1/6W	R348	1-247-815-00	CARBON	220	5%	1/6W
R239	1-247-819-00	CARBON	330	5%	1/6W	R349	1-249-437-11	CARBON	47K	5%	1/6W
R241	1-212-367-00	METAL OXIDE	3.9	5%	1W	R350	1-247-815-00	CARBON	220	5%	1/6W
R242	1-206-495-00	METAL OXIDE	2.2	5%	3W	R351	1-247-829-00	CARBON	820	5%	1/6W
R243	1-247-821-00	CARBON	390	5%	1/6W	R352	1-247-725-11	CARBON	10K	5%	1/4W
R244	1-246-457-00	CARBON	220	5%	1/4W	R353	1-249-433-11	CARBON	22K	5%	1/6W
R245	1-249-414-11	CARBON	560	5%	1/6W	R354	1-246-536-00	CARBON	430K	5%	1/4W
R250	1-206-453-00	METAL OXIDE	3.9	5%	2W	R356	1-246-517-25	CARBON	68K	5%	1/4W
R251	1-247-706-11	CARBON	330	5%	1/4W	R357	1-247-903-00	CARBON	1M	5%	1/6W
R256	1-247-025-00	CARBON	3.9	5%	1/8W	R359	1-249-415-11	CARBON	680	5%	1/6W
R300	1-249-405-11	CARBON	100	5%	1/6W	R360	1-249-415-11	CARBON	680	5%	1/6W
R301	1-249-435-11	CARBON	33K	5%	1/6W	R361	1-247-823-00	CARBON	470	5%	1/6W
R302	1-249-434-11	CARBON	27K	5%	1/6W	R362	1-247-833-00	CARBON	1.2K	5%	1/6W
R303	1-247-833-00	CARBON	1.2K	5%	1/6W	R363	1-247-819-00	CARBON	330	5%	1/6W
R304	1-247-823-00	CARBON	470	5%	1/6W	R364	1-247-833-00	CARBON	1.2K	5%	1/6W
R305	1-247-833-00	CARBON	1.2K	5%	1/6W	R365	1-249-420-11	CARBON	1.8K	5%	1/6W
R306	1-249-419-11	CARBON	1.5K	5%	1/6W	R366	1-249-422-11	CARBON	2.7K	5%	1/6W
R307	1-249-415-11	CARBON	680	5%	1/6W	R367	1-249-425-11	CARBON	4.7K	5%	1/6W
R308	1-249-415-11	CARBON	680	5%	1/6W	R377	1-247-708-11	CARBON	470	5%	1/4W
R309	1-249-415-11	CARBON	680	5%	1/6W	R380	1-249-435-11	CARBON	33K	5%	1/6W
R310	1-249-415-11	CARBON	680	5%	1/6W	R381	1-249-435-11	CARBON	33K	5%	1/6W
R311	1-247-833-00	CARBON	1.2K	5%	1/6W	R382	1-249-429-11	CARBON	10K	5%	1/6W
R312	1-247-833-00	CARBON	1.2K	5%	1/6W	R401	1-246-457-00	CARBON	220	5%	1/4W
R313	1-249-419-11	CARBON	1.5K	5%	1/6W	R402	1-246-457-00	CARBON	220	5%	1/4W
R314	1-249-419-11	CARBON	1.5K	5%	1/6W	R403	1-246-457-00	CARBON	220	5%	1/4W
R315	1-247-833-00	CARBON	1.2K	5%	1/6W	R404	1-247-849-00	CARBON	5.6K	5%	1/6W
R316	1-247-833-00	CARBON	1.2K	5%	1/6W	R405	1-247-839-00	CARBON	2.2K	5%	1/6W
R317	1-249-417-11	CARBON	1K	5%	1/6W	R406	1-247-833-00	CARBON	1.2K	5%	1/6W
R318	1-249-422-11	CARBON	2.7K	5%	1/6W	R408	1-247-839-00	CARBON	2.2K	5%	1/6W
R319	1-249-422-11	CARBON	2.7K	5%	1/6W	R410	1-215-406-00	METAL	240	1%	1/6W
R320	1-249-422-11	CARBON	2.7K	5%	1/6W	R411	1-214-717-00	METAL	330	1%	1/4W
R321	1-247-899-00	CARBON	680K	5%	1/6W	R412	1-249-417-11	CARBON	1K	5%	1/6W
R323	1-247-720-11	CARBON	3.9K	5%	1/4W	R414	1-249-469-11	CARBON	100K	5%	1/4W
R324	1-247-706-11	CARBON	330	5%	1/4W	R416	1-246-523-00	CARBON	120K	5%	1/4W
R325	1-249-433-11	CARBON	22K	5%	1/6W	R417	1-249-462-11	CARBON	22K	5%	1/4W
R326	1-249-423-11	CARBON	3.3K	5%	1/6W	R418	1-249-429-11	CARBON	10K	5%	1/6W
R327	1-247-845-00	CARBON	3.9K	5%	1/6W	R419	1-249-469-11	CARBON	100K	5%	1/4W
R328	1-247-829-00	CARBON	820	5%	1/6W	R420	1-249-425-11	CARBON	4.7K	5%	1/6W
R329	1-247-839-00	CARBON	2.2K	5%	1/6W	R421	1-214-717-00	METAL	330	1%	1/4W
R331	1-249-405-11	CARBON	100	5%	1/6W	R422	1-249-462-11	CARBON	22K	5%	1/4W
R332	1-247-821-00	CARBON	390	5%	1/6W	R423	1-249-437-11	CARBON	47K	5%	1/6W
R333	1-249-433-11	CARBON	22K	5%	1/6W	R424	1-247-713-11	CARBON	1K	5%	1/4W
R334	1-247-829-00	CARBON	820	5%	1/6W	R425	1-247-839-00	CARBON	2.2K	5%	1/6W
R335	1-249-417-11	CARBON	1K	5%	1/6W	R426	1-249-468-11	CARBON	82K	5%	1/4W
R336	1-247-897-00	CARBON	560K	5%	1/6W	R427	1-247-725-11	CARBON	10K	5%	1/4W
R337	1-247-895-00	CARBON	470K	5%	1/6W	R428	1-247-883-00	CARBON	150K	5%	1/6W
R339	1-247-819-00	CARBON	330	5%	1/6W	R429	1-247-712-11	CARBON	820	5%	1/4W
R340	1-249-437-11	CARBON	47K	5%	1/6W	R431	1-247-725-11	CARBON	10K	5%	1/4W


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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
D1322	8-719-102-58	DIODE RD3.6E-N2				<u>SWITCH</u>	
		<u>IC</u>		S1301	1-553-976-00	SWITCH, PUSH	
IC1301	8-759-909-49	IC CX23040		S1302	1-553-976-00	SWITCH, PUSH	
		<u>COIL</u>		S1303	1-553-976-00	SWITCH, PUSH	
L1301	1-407-705-00	MICRO INDUCTOR 100UH		S1304	1-553-976-00	SWITCH, PUSH	
		<u>CONNECTOR</u>		S1305	1-570-061-11	SWITCH, PUSH (8 KEY)	
M1	*1-566-055-11	PIN, CONNECTOR 3P		S1306	1-570-061-11	SWITCH, PUSH (8 KEY)	
M2	*1-566-055-11	PIN, CONNECTOR 3P		S1307	1-570-061-11	SWITCH, PUSH (8 KEY)	
M3	*1-566-058-11	PIN, CONNECTOR 6P		S1308	1-570-061-11	SWITCH, PUSH (8 KEY)	
M5	*1-566-056-11	PIN, CONNECTOR 4P		S1309	1-553-976-00	SWITCH, PUSH	
		<u>TRANSISTOR</u>		S1310	1-570-061-11	SWITCH, PUSH (8 KEY)	
Q1301	8-729-178-54	TRANSISTOR 2SC2785		S1311	1-553-976-00	SWITCH, PUSH	
Q1302	8-729-178-54	TRANSISTOR 2SC2785		S1312	1-570-061-11	SWITCH, PUSH (8 KEY)	
Q1303	8-729-178-54	TRANSISTOR 2SC2785		S1313	1-570-061-11	SWITCH, PUSH (8 KEY)	
		<u>RESISTOR</u>		S1316	1-570-062-11	SWITCH, PUSH (2 KEY)	
R1301	1-247-717-11	CARBON 2.2K 5% 1/4W		S1317	1-570-062-11	SWITCH, PUSH (2 KEY)	
R1302	1-247-717-11	CARBON 2.2K 5% 1/4W		S1319	1-570-061-11	SWITCH, PUSH (8 KEY)	
R1303	1-247-717-11	CARBON 2.2K 5% 1/4W		S1321	1-554-824-11	SWITCH, PUSH (1 KEY)	
R1304	1-247-717-11	CARBON 2.2K 5% 1/4W		S1322	1-554-824-11	SWITCH, PUSH (1 KEY)	
R1305	1-247-717-11	CARBON 2.2K 5% 1/4W				<u>CRYSTAL</u>	
R1306	1-247-717-11	CARBON 2.2K 5% 1/4W		X1301	1-527-476-00	OSCILLATOR, CERAMIC	
R1307	1-247-717-11	CARBON 2.2K 5% 1/4W				*****	
R1308	1-247-717-11	CARBON 2.2K 5% 1/4W				*A-1330-561-A C BOARD COMPLETE	
R1309	1-247-717-11	CARBON 2.2K 5% 1/4W				*****	
R1310	1-247-717-11	CARBON 2.2K 5% 1/4W				△ 1-526-798-12 SOCKET, CRT	
R1311	1-247-717-11	CARBON 2.2K 5% 1/4W				*4-374-225-01 COVER (REAR LID), CV CONTROL	
R1312	1-249-465-11	CARBON 47K 5% 1/4W				*4-374-227-01 COVER (MAIN), CV CONTROL	
R1313	1-249-469-11	CARBON 100K 5% 1/4W				<u>CONNECTOR</u>	
R1314	1-247-717-11	CARBON 2.2K 5% 1/4W		C1	*1-506-371-00	2P PLUG (L)	
R1315	1-246-529-00	CARBON 220K 5% 1/4W				<u>CAPACITOR</u>	
R1316	1-247-721-11	CARBON 4.7K 5% 1/4W		C701	1-129-714-00	FILM 0.01MF 10% 630V	
R1317	1-247-714-11	CARBON 1.2K 5% 1/4W		C702	1-162-116-00	CERAMIC 680PF 10% 2KV	
R1318	1-246-465-25	CARBON 470 5% 1/4W		C703	1-162-114-00	CERAMIC 0.0047MF 10% 2KV	
R1319	1-246-449-25	CARBON 100 5% 1/4W		C704	1-123-356-00	ELECT 10MF 20% 50V	
R1320	1-247-725-11	CARBON 10K 5% 1/4W		C705	1-102-074-00	CERAMIC 0.001MF 10% 50V	
R1321	1-246-465-25	CARBON 470 5% 1/4W		C706	1-102-074-00	CERAMIC 0.001MF 10% 50V	
R1322	1-247-717-11	CARBON 2.2K 5% 1/4W		C707	1-102-074-00	CERAMIC 0.001MF 10% 50V	
R1323	1-247-717-11	CARBON 2.2K 5% 1/4W		C708	1-102-116-00	CERAMIC 680PF 10% 50V	
R1324	1-247-717-11	CARBON 2.2K 5% 1/4W		C709	1-102-115-00	CERAMIC 560PF 10% 50V	
R1325	1-247-725-11	CARBON 10K 5% 1/4W		C710	1-102-115-00	CERAMIC 560PF 10% 50V	
R1326	1-249-462-11	CARBON 22K 5% 1/4W		C711	1-101-006-00	CERAMIC 0.047MF 50V	
R1327	1-247-706-11	CARBON 330 5% 1/4W		C712	1-123-356-00	ELECT 10MF 20% 25V	
R1328	1-247-692-11	CARBON 22 5% 1/4W		C713	1-123-447-00	ELECT 0.22MF 20% 50V	
R1329	1-249-460-11	CARBON 15K 5% 1/4W		C714	1-161-830-00	CERAMIC 0.0047MF 500V	
R1336	1-247-713-11	CARBON 1K 5% 1/4W				<u>DIODE</u>	
				D701	8-719-911-19	DIODE 1SS119	


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
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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
D702	8-719-911-19	DIODE 1SS119		VARIABLE RESISTOR			
D703	8-719-911-19	DIODE 1SS119		RV701A	1-230-619-11	RES, ADJ, METAL GLAZE 110M	
COIL				RV702	1-230-104-00	RES, ADJ, CARBON 4.7K	
L701	1-408-417-00	MICRO INDUCTOR 47UH		RV703	1-230-617-11	RES, ADJ, CARBON 1K	
L702	1-407-701-00	MICRO INDUCTOR 47UH		RV704	1-230-104-00	RES, ADJ, CARBON 4.7K	
L703	1-407-701-00	MICRO INDUCTOR 47UH		RV705	1-230-617-11	RES, ADJ, CARBON 1K	
L704	1-407-701-00	MICRO INDUCTOR 47UH		RV706	1-230-104-00	RES, ADJ, CARBON 4.7K	
L705	1-407-699-00	MICRO INDUCTOR 33UH		RV707	1-230-105-00	RES, ADJ, CARBON 3.3K	
L706	1-407-699-00	MICRO INDUCTOR 33UH		SPARK GAP			
L707	1-407-699-00	MICRO INDUCTOR 33UH		SG701	1-519-030-00	DISCHARGE ELEMENT	
TRANSISTOR				SG702	1-519-030-00	DISCHARGE ELEMENT	
Q701	8-729-178-54	TRANSISTOR 2SC2785		SG703	1-519-030-00	DISCHARGE ELEMENT	
Q702	8-729-326-11	TRANSISTOR 2SC2611		*****			
Q703	8-729-178-54	TRANSISTOR 2SC2785		*A-1345-520-A	D BOARD COMPLETE	*****	
Q704	8-729-326-11	TRANSISTOR 2SC2611		*1-564-038-00	CONNECTOR PLUG, DY (MINI) 6P		
Q705	8-729-178-54	TRANSISTOR 2SC2785		*4-323-833-00	HEAT SINK, PIN OUT		
Q706	8-729-326-11	TRANSISTOR 2SC2611		4-367-513-00	SPACER, MICA		
RESISTOR				CAPACITOR			
R701	1-202-838-00	SOLID 100K	1/2W	C501	1-106-359-00	MYLAR 0.0047MF	10% 100V
R702	1-212-364-00	METAL OXIDE 2.2	5% 1W	C503	1-106-180-00	MYLAR 0.0022MF	10% 100V
R703	1-202-842-11	SOLID 220K	1/2W	C504	1-123-380-00	ELECT 1MF	20% 50V
R704	1-202-846-00	SOLID 470K	1/2W	C505	1-106-212-00	MYLAR 0.047MF	10% 100V
R705	1-202-837-00	SOLID 82K	1/2W	C507	1-123-369-00	ELECT 4.7MF	20% 25V
R706	1-202-549-00	SOLID 100	10% 1/2W	C508	1-106-192-00	MYLAR 0.0068MF	10% 100V
R708	1-202-824-00	SOLID 3.3K	1/2W	C509	1-106-220-00	MYLAR 0.1MF	10% 100V
R709	1-202-824-00	SOLID 3.3K	1/2W	C510	1-106-204-00	MYLAR 0.022MF	10% 100V
R711	1-247-819-00	CARBON 330	5% 1/6W	C511	1-123-356-00	ELECT 10MF	20% 16V
R712	1-247-819-00	CARBON 330	5% 1/6W	C512	1-123-381-00	ELECT 2.2MF	20% 50V
R713	1-202-824-00	SOLID 3.3K	1/2W	C513	1-130-868-00	FILM 0.0056MF	5% 50V
R714	1-246-449-25	CARBON 100	5% 1/4W	C514	1-123-356-00	ELECT 10MF	20% 16V
R715	1-247-839-00	CARBON 2.2K	5% 1/6W	C515	1-123-356-00	ELECT 10MF	20% 16V
R716	1-247-817-00	CARBON 270	5% 1/6W	C516	1-102-820-00	CERAMIC 330PF	5% 50V
R719	1-249-419-11	CARBON 1.5K	5% 1/6W	C517	1-123-330-00	ELECT 22MF	20% 16V
R720	1-247-817-00	CARBON 270	5% 1/6W	C518	1-106-180-00	MYLAR 0.0022MF	10% 100V
R722	1-206-747-00	METAL OXIDE 8.2K	5% 3W	C519	1-136-173-00	FILM 0.47MF	5% 50V
R723	1-247-817-00	CARBON 270	5% 1/6W	C520	1-123-379-00	ELECT 0.47MF	20% 50V
R725	1-247-839-00	CARBON 2.2K	5% 1/6W	C521	1-106-212-00	MYLAR 0.047MF	10% 100V
R726	1-247-777-00	CARBON 5.6	5% 1/6W	C522	1-106-196-00	MYLAR 0.01MF	10% 100V
R727	1-249-419-11	CARBON 1.5K	5% 1/6W	C523	1-123-380-00	ELECT 1MF	20% 50V
R728	1-247-817-00	CARBON 270	5% 1/6W	C524	1-106-204-00	MYLAR 0.022MF	10% 100V
R729	1-247-819-00	CARBON 330	5% 1/6W	C525	1-106-196-00	MYLAR 0.01MF	10% 100V
R730	1-206-747-00	METAL OXIDE 8.2K	5% 3W	C526	1-123-323-00	ELECT 470MF	20% 16V
R732	1-247-813-00	CARBON 180	5% 1/6W	C527	1-106-176-00	MYLAR 0.0015MF	10% 100V
R733	1-247-839-00	CARBON 2.2K	5% 1/6W	C528	1-106-204-00	MYLAR 0.022MF	10% 100V
R734	1-249-422-11	CARBON 2.7K	5% 1/6W	C529	1-102-030-00	CERAMIC 330PF	10% 500V
R735	1-247-781-00	CARBON 8.2	5% 1/6W	C530	1-123-357-00	ELECT 22MF	20% 50V
R737	1-206-747-00	METAL OXIDE 8.2K	5% 3W	C532	1-123-232-00	ELECT 4.7MF	20% 50V


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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C533	1-123-323-00	ELECT	470MF 20% 16V	C608	1-123-330-00	ELECT	22MF 20% 16V
C536	1-131-369-00	TANTALUM	4.7MF 10% 16V	C610	1-123-335-00	ELECT	330MF 20% 25V
C537	1-123-356-00	ELECT	10MF 20% 25V	C611	1-123-360-00	ELECT	100MF 20% 50V
C538	1-124-117-00	ELECT	680MF 10% 25V	C612	1-123-323-00	ELECT	470MF 20% 16V
C542	1-123-356-00	ELECT	10MF 20% 16V	C613	1-123-336-00	ELECT	470MF 20% 25V
C544	1-108-595-00	MYLAR	0.047MF 5% 50V	C614	1-101-002-00	CERAMIC	0.0022MF 50V
C546	1-123-332-00	ELECT	47MF 20% 16V	C617	1-130-678-51	FILM	0.047MF 20% 125V
C551	1-106-204-00	MYLAR	0.022MF 10% 100V	C621	1-136-311-51	FILM	0.47MF 20% 125V
C552	1-102-030-00	CERAMIC	330PF 10% 500V	C624	1-125-457-11	ELECT(BLOCK)	560MF 20% 200V
C553	1-106-192-00	MYLAR	0.0068MF 10% 100V	C625	1-161-953-00	CERAMIC	0.0047MF 20% 400V
C554	1-123-345-00	ELECT	100MF 20% 35V	C627	1-161-953-00	CERAMIC	0.0047MF 20% 400V
C556	1-123-003-00	ELECT	1MF 250V	C628	1-161-953-00	CERAMIC	0.0047MF 20% 400V
C557	1-123-356-00	ELECT	10MF 20% 25V	C629	1-125-457-11	ELECT(BLOCK)	560MF 20% 200V
C558	1-123-356-00	ELECT	10MF 20% 16V				
C559	1-124-192-00	ELECT	4.7MF 20% 50V			CONNECTOR	
C560	1-106-208-00	MYLAR	0.033MF 10% 100V	D1	*1-566-054-11	PIN, CONNECTOR 2P	
C561	1-106-172-00	MYLAR	0.001MF 10% 100V	D2	*1-566-060-11	PIN, CONNECTOR 8P	
C562	1-106-176-00	MYLAR	0.0015MF 10% 100V	D3	*1-508-766-00	4P PLUG (M)	
C563	1-123-003-00	ELECT	1MF 250V	D4	*1-566-057-11	PIN, CONNECTOR 5P	
C564	1-102-244-00	CERAMIC	220PF 10% 500V	D5	*1-566-056-11	PIN, CONNECTOR 4P	
C566	1-106-196-00	MYLAR	0.01MF 10% 100V	D6	*1-508-767-00	5P PLUG	
C567	1-102-112-00	CERAMIC	330PF 10% 50V	D8	*1-508-765-00	3P PLUG (M)	
C568	1-106-212-00	MYLAR	0.047MF 10% 100V	D9	*1-508-786-00	2P PLUG (M)	
C570	1-102-212-00	CERAMIC	820PF 10% 500V	D10	*1-508-765-00	3P PLUG (M)	
C571	1-123-349-00	ELECT	1000MF 20% 35V	D11	*1-508-766-00	4P PLUG (M)	
C572	1-102-244-00	CERAMIC	220PF 10% 500V	D15	*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)	
C573	1-121-999-00	ELECT	10MF 160V	D16	*1-508-765-00	3P PLUG (M)	
C574	1-106-369-00	MYLAR	0.012MF 10% 200V			DIODE	
C575	1-123-024-00	ELECT	33MF 160V	D501	8-719-911-19	DIODE 1SS119	
C576	1-108-425-00	MYLAR	0.022MF 10% 200V	D502	8-719-911-19	DIODE 1SS119	
C578	1-123-379-00	ELECT	0.47MF 20% 50V	D503	8-719-911-55	DIODE U05G	
C579	1-102-030-00	CERAMIC	330PF 10% 500V	D504	8-719-911-19	DIODE 1SS119	
C580	1-108-689-11	MYLAR	0.0056MF 10% 200V	D507	8-719-100-35	DIODE RD5.6E-B2	
C581	1-136-309-11	FILM	0.0075MF 3% 1.4KV	D508	8-719-190-00	DIODE RD24E-BZ7	
C582	1-162-115-51	CERAMIC	330PF 10% 2KV	D509	8-719-100-35	DIODE RD5.6E-B2	
C583	1-106-196-00	MYLAR	0.01MF 10% 100V	D510	8-719-911-19	DIODE 1SS119	
C584	1-108-433-00	MYLAR	0.1MF 10% 200V	D551	8-719-911-55	DIODE U05G	
C585	1-162-318-51	CERAMIC	0.001MF 10% 500V	D552	8-719-911-55	DIODE U05G	
C586	1-162-135-51	CERAMIC	560PF 10% 2KV	D553	8-719-911-55	DIODE U05G	
C587	1-136-312-51	FILM	0.043MF 5% 400V	D554	8-719-300-65	DIODE ES1F	
C588	1-136-308-11	FILM	0.68MF 5% 200V	D557	8-719-918-77	DIODE V19G	
C589	1-136-116-00	FILM	1MF 5% 200V	D558	8-719-300-76	DIODE RH1A	
C590	1-102-074-00	CERAMIC	0.001MF 10% 50V	D560	8-719-305-15	DIODE GH3F	
C591	1-102-228-00	CERAMIC	470PF 10% 500V	D561	8-719-928-08	DIODE ERD28-08S	
C592	1-102-112-00	CERAMIC	330PF 10% 50V	D605	8-719-911-55	DIODE U05G	
C598	1-123-332-00	ELECT	47MF 20% 16V	D606	8-719-911-19	DIODE 1SS119	
C601	1-102-050-00	CERAMIC	0.01MF 500V	D607	8-719-911-55	DIODE U05G	
C602	1-123-333-00	ELECT	100MF 20% 16V	D609	8-719-521-10	DIODE S1VB10-S	
C603	1-102-125-00	CERAMIC	0.0047MF 10% 50V	D610	8-719-102-71	DIODE RD5.6E-N2	
C604	1-102-125-00	CERAMIC	0.0047MF 10% 50V	D621	8-719-200-02	DIODE 10E2	
C605	1-123-333-00	ELECT	100MF 20% 25V	D622	8-719-911-55	DIODE U05G	
C606	1-123-360-00	ELECT	100MF 20% 50V	D623	8-719-911-55	DIODE U05G	
C607	1-123-356-00	ELECT	10MF 20% 16V				


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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
<u>FUSE</u>				R511	1-247-868-00	CARBON 36K 5% 1/6W	
F601	1-532-509-11	FUSE, GLASS TUBE 6.3A/125V		R512	1-247-819-00	CARBON 330 5% 1/6W	
	1-517-072-00	LAMP HOLDER; F601		R513	1-249-468-11	CARBON 82K 5% 1/4W	
F602	1-532-536-11	FUSE, GLASS-TUBE 1A/125V		R514	1-247-719-11	CARBON 3.3K 5% 1/4W	
	1-533-087-00	HOLDER, FUSE; F602		R515	1-249-459-11	CARBON 12K 5% 1/4W	
<u>IC</u>				R516	1-249-435-11	CARBON 33K 5% 1/6W	
IC501	8-759-100-60	IC UPC1377C		R517	1-247-811-00	CARBON 150 5% 1/6W	
IC551	8-759-105-82	IC UPC1378H-P		R518	1-247-711-11	CARBON 680 5% 1/4W	F
	3-701-833-01	HEAD, WASHER, TAPPING SCREW; IC551		R519	1-247-849-00	CARBON 5.6K 5% 1/6W	
IC552	8-759-145-58	IC UPC4558C		R520	1-249-419-11	CARBON 1.5K 5% 1/6W	
<u>COIL</u>				R521	1-249-417-11	CARBON 1K 5% 1/6W	
L551	1-459-570-11	HLC		R522	1-247-873-00	CARBON 56K 5% 1/6W	
L552	1-459-390-11	COIL (WITH CORE)		R523	1-247-856-00	CARBON 11K 5% 1/6W	
L553	1-459-104-00	COIL, DUST CORE		R524	1-249-459-11	CARBON 12K 5% 1/4W	
L555	1-407-699-00	MICRO INDUCTOR 33UH		R525	1-247-873-00	CARBON 56K 5% 1/6W	
L556	1-407-699-00	MICRO INDUCTOR 33UH		R526	1-247-717-11	CARBON 2.2K 5% 1/4W	
L557	1-459-407-11	COIL, FERRITE CHOKE		R527	1-247-821-00	CARBON 390 5% 1/6W	
L558	1-407-365-00	COIL, CHOKE		R528	1-247-845-00	CARBON 3.9K 5% 1/6W	
L559	1-407-364-00	COIL, SPOOK CHOKE 3.3UH		R529	1-214-746-00	METAL 5.1K 1% 1/4W	
L560	1-407-695-00	MICRO INDUCTOR 15UH		R530	1-214-753-00	METAL 10K 1% 1/4W	
L562	1-408-239-00	MICRO INDUCTOR 4.7MMH		R531	1-247-725-11	CARBON 10K 5% 1/4W	
L563	1-459-075-00	COIL, DYNAMIC CONVERSION CHOKE		R532	1-206-692-00	METAL OXIDE 15K 5% 2W	F
<u>NEON LAMP</u>				R533	1-214-747-00	METAL 5.6K 1% 1/4W	
NL551	1-519-237-11	LAMP, NEON		R534	1-247-851-00	CARBON 6.8K 5% 1/6W	
<u>TRANSISTOR</u>				R535	1-247-853-00	CARBON 8.2K 5% 1/6W	
Q501	8-729-178-55	TRANSISTOR 2SC2785-E		R537	1-249-429-11	CARBON 10K 5% 1/6W	
Q503	8-729-309-06	TRANSISTOR 2SC1890A-EV		R538	1-212-361-00	METAL OXIDE 1.2 5% 1W	F
Q504	8-729-178-55	TRANSISTOR 2SC2785-E		R539	1-247-823-00	CARBON 470 5% 1/6W	
Q505	8-729-178-55	TRANSISTOR 2SC2785-E		R542	1-214-779-00	METAL 120K 1% 1/4W	
Q510	8-729-117-54	TRANSISTOR 2SA1175		R543	1-247-903-00	CARBON 1M 5% 1/6W	
Q551	8-729-168-82	TRANSISTOR 2SC2688		R544	1-214-781-00	METAL 150K 1% 1/4W	
Q552	8-729-203-80	TRANSISTOR 2SD1555-1B-S1		R545	1-214-766-00	METAL 36K 1% 1/4W	
Q553	8-729-313-42	TRANSISTOR 2SD1134		R546	1-247-857-00	CARBON 12K 5% 1/6W	
Q602	8-729-965-22	TRANSISTOR 2SC1652		R547	1-247-833-00	CARBON 1.2K 5% 1/6W	
Q603	8-729-378-84	TRANSISTOR 2SD788		R549	1-247-724-11	CARBON 8.2K 5% 1/4W	
<u>RESISTOR</u>				R550	1-247-725-11	CARBON 10K 5% 1/4W	
R500	1-249-417-11	CARBON 1K 5% 1/6W		R551	1-214-681-00	METAL 10 1% 1/4W	
R501	1-247-725-11	CARBON 10K 5% 1/4W		R552	1-247-041-00	CARBON 1.2K 5% 1/8W	F
R502	1-247-725-11	CARBON 10K 5% 1/4W		R553	1-247-746-11	CARBON 390 5% 1/2W	
R503	1-246-457-00	CARBON 220 5% 1/4W		R554	1-246-539-00	CARBON 560K 5% 1/4W	
R504	1-247-819-00	CARBON 330 5% 1/6W		R556	1-249-468-11	CARBON 82K 5% 1/4W	
R505	1-247-716-11	CARBON 1.8K 5% 1/4W		R558	1-249-437-11	CARBON 47K 5% 1/6W	
R506	1-246-449-25	CARBON 100 5% 1/4W		R559	1-247-897-00	CARBON 560K 5% 1/6W	
R507	1-246-536-00	CARBON 430K 5% 1/4W		R563	1-213-135-00	METAL OXIDE 220 5% 1W	F
R508	1-249-462-11	CARBON 22K 5% 1/4W		R564	1-247-719-11	CARBON 3.3K 5% 1/4W	F
R509	1-249-433-11	CARBON 22K 5% 1/6W		R565	1-213-134-00	METAL OXIDE 180 5% 1W	F
R510	1-249-440-11	CARBON 82K 5% 1/6W		R566	1-213-135-00	METAL OXIDE 220 5% 1W	F
				R567	1-249-429-11	CARBON 10K 5% 1/6W	
				R568	1-247-715-11	CARBON 1.5K 5% 1/4W	F
				R569	1-247-035-00	CARBON 270 5% 1/8W	F
				R570	1-249-417-11	CARBON 1K 5% 1/6W	
				R571	1-246-465-25	CARBON 470 5% 1/4W	

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R572	1-247-833-00	CARBON	1.2K 5% 1/6W			<u>TRANSFORMER</u>	
R573	1-206-465-00	METAL OXIDE	12 5% 2W F	T552	1-437-090-00	HDT	
R574	1-247-815-00	CARBON	220 5% 1/6W	T602	△1-421-412-11	COIL, FERRITE	
R575	1-247-725-11	CARBON	10K 5% 1/4W	T603	△1-421-412-11	COIL, FERRITE	
R576	1-247-851-00	CARBON	6.8K 5% 1/6W			<u>THERMISTOR</u>	
R577	1-249-429-11	CARBON	10K 5% 1/6W			<u>THP601A</u> 1-806-214-11	THERMISTOR, POSITIVE
R578	1-249-411-11	CARBON	330 5% 1/8W F			*****	
R579	1-247-719-11	CARBON	3.3K 5% 1/4W			*1-613-477-21	K BOARD
R580	1-247-725-11	CARBON	10K 5% 1/4W F			*****	
R581	1-213-140-00	METAL OXIDE	560 5% 1W F			<u>TRANSFORMER</u>	
R582	1-212-359-00	METAL OXIDE	0.82 5% 1W F			T601	△1-448-019-11 TRANSFORMER, POWER
R583	1-249-433-11	CARBON	22K 5% 1/6W			*****	
R584	1-246-511-00	CARBON	39K 5% 1/4W			*A-1381-024-A	U BOARD COMPLETE
R585	1-247-719-11	CARBON	3.3K 5% 1/4W			*****	
R586	1-247-857-00	CARBON	12K 5% 1/6W			1-536-889-11	TERMINAL BOARD, INPUT/OUTPUT
R587	1-246-529-00	CARBON	220K 5% 1/4W			*1-560-984-00	CONNECTOR (PLUG) 34P
R588	1-249-429-11	CARBON	10K 5% 1/6W			<u>CAPACITOR</u>	
R589	1-249-432-11	CARBON	18K 5% 1/6W			C801	1-123-380-00 ELECT 1MF 20% 50V
R590	1-247-749-11	CARBON	560 5% 1/2W F			C802	1-123-380-00 ELECT 1MF 20% 50V
R591	1-247-713-11	CARBON	1K 5% 1/4W			C803	1-123-380-00 ELECT 1MF 20% 50V
R592	1-249-424-11	CARBON	3.9K 5% 1/8W			C804	1-123-380-00 ELECT 1MF 20% 50V
R593	1-247-040-00	CARBON	1K 5% 1/8W F			C805	1-123-380-00 ELECT 1MF 20% 50V
R595	1-247-749-11	CARBON	560 5% 1/2W F			C806	1-123-611-00 ELECT 1MF 20% 50V
R596	1-247-829-00	CARBON	820 5% 1/6W			C807	1-123-611-00 ELECT 1MF 20% 50V
R598	1-246-525-00	CARBON	150K 5% 1/4W			C808	1-123-324-00 ELECT 1000MF 20% 16V
R599	1-247-717-11	CARBON	2.2K 5% 1/4W			C809	1-123-324-00 ELECT 1000MF 20% 16V
R602	△1-246-481-25	CARBON	2.2K 5% 1/4W			C810	1-123-324-00 ELECT 1000MF 20% 16V
R603	△1-246-481-25	CARBON	2.2K 5% 1/4W			C811	1-123-611-00 ELECT 1MF 20% 50V
R604	△1-213-135-61	METAL OXIDE	220 5% 1W F			C812	1-123-611-00 ELECT 1MF 20% 50V
R606	△1-247-713-11	CARBON	1K 5% 1/4W			C813	1-123-380-00 ELECT 1MF 20% 50V
R607	1-247-717-11	CARBON	2.2K 5% 1/4W			C814	1-123-380-00 ELECT 1MF 20% 50V
R608	1-247-711-11	CARBON	680 5% 1/4W			C815	1-123-380-00 ELECT 1MF 20% 50V
R620	1-202-723-00	SOL ID	2.2M 10% 1/2W			C816	1-123-380-00 ELECT 1MF 20% 50V
R621	△1-202-723-51	SOL ID	2.2M 10% 1/2W			C817	1-123-307-00 ELECT 100MF 20% 6.3V
R623	1-246-525-00	CARBON	150K 5% 1/4W			C818	1-123-318-00 ELECT 33MF 20% 16V
R624	1-246-525-00	CARBON	150K 5% 1/4W			C819	1-123-308-00 ELECT 220MF 20% 10V
		<u>VARIABLE RESISTOR</u>				C820	1-102-125-00 CERAMIC 0.0047MF 10% 50V
RV501	1-228-723-00	RES, ADJ, CERAMIC CARBON	4.7K			C821	1-102-965-00 CERAMIC 39PF 5% 50V
RV503	1-228-718-00	RES, ADJ, CERAMIC CARBON	330			C822	1-102-965-00 CERAMIC 39PF 5% 50V
RV552	1-228-725-00	RES, ADJ, CERAMIC CARBON	22K			C823	1-102-965-00 CERAMIC 39PF 5% 50V
RV553	1-228-720-00	RES, ADJ, CERAMIC CARBON	1K			C824	1-123-820-00 ELECT 33MF 20% 16V
RV554	1-228-726-00	RES, ADJ, CERAMIC CARBON	33K			C825	1-123-820-00 ELECT 33MF 20% 16V
		<u>RELAY</u>				C826	1-123-820-00 ELECT 33MF 20% 16V
RY601A	△1-515-491-11	RELAY (POWER)				C827	1-102-824-00 CERAMIC 470PF 5% 50V
		<u>SWITCH</u>				C829	1-101-880-00 CERAMIC 47PF 5% 50V
S551	1-554-186-00	SWITCH, LEVER				C830	1-123-333-00 ELECT 100MF 20% 16V
		<u>SPARK GAP</u>					
SG551	1-519-063-XX	DISCHARGING GAP					

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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C832	1-123-622-00	ELECT 22MF	20% 16V	Q815	8-729-178-54	TRANSISTOR 2SC2785	
C834	1-123-318-00	ELECT 33MF	20% 16V	Q816	8-729-178-54	TRANSISTOR 2SC2785	
C835	1-123-820-00	ELECT 33MF	20% 16V	Q817	8-729-178-54	TRANSISTOR 2SC2785	
C836	1-123-820-00	ELECT 33MF	20% 16V	Q818	8-729-178-54	TRANSISTOR 2SC2785	
C837	1-123-318-00	ELECT 33MF	20% 16V	Q819	8-729-178-54	TRANSISTOR 2SC2785	
C839	1-123-380-00	ELECT 1MF	20% 50V	Q820	8-729-178-54	TRANSISTOR 2SC2785	
C842	1-123-321-00	ELECT 220MF	20% 16V	Q821	8-729-178-54	TRANSISTOR 2SC2785	
C843	1-123-318-00	ELECT 33MF	20% 16V	Q822	8-729-117-54	TRANSISTOR 2SA1175	
C845	1-123-356-00	ELECT 10MF	20% 16V	Q823	8-729-117-54	TRANSISTOR 2SA1175	
C846	1-119-358-00	ELECT 22MF	16V	Q824	8-729-178-54	TRANSISTOR 2SC2785	
C847	1-102-125-00	CERAMIC 0.0047MF	10% 50V	Q825	8-729-117-54	TRANSISTOR 2SA1175	
C851	1-123-333-00	ELECT 100MF	20% 16V	Q826	8-729-178-54	TRANSISTOR 2SC2785	
C852	1-123-318-00	ELECT 33MF	20% 16V	Q827	8-729-178-54	TRANSISTOR 2SC2785	
C853	1-102-125-00	CERAMIC 0.0047MF	10% 50V	Q828	8-729-178-54	TRANSISTOR 2SC2785	
C880	1-123-307-00	ELECT 100MF	20% 6.3V	Q829	8-729-117-54	TRANSISTOR 2SA1175	
<u>DIODE</u>				Q830	8-729-117-54	TRANSISTOR 2SA1175	
D801	8-719-102-74	DIODE RD6.2E-N2		Q831	8-729-117-54	TRANSISTOR 2SA1175	
D802	8-719-102-74	DIODE RD6.2E-N2		Q832	8-729-117-54	TRANSISTOR 2SA1175	
D803	8-719-102-74	DIODE RD6.2E-N2		Q833	8-729-178-54	TRANSISTOR 2SC2785	
D806	8-719-102-74	DIODE RD6.2E-N2		Q834	8-729-178-54	TRANSISTOR 2SC2785	
D807	8-719-911-19	DIODE 1SS119		Q835	8-729-178-54	TRANSISTOR 2SC2785	
D808	8-719-911-19	DIODE 1SS119		<u>RESISTOR</u>			
D809	8-719-911-19	DIODE 1SS119		R801	1-247-708-11	CARBON 470 5%	1/4W
D814	8-719-815-55	DIODE 1S1555		R802	1-247-873-00	CARBON 56K 5%	1/6W
D815	8-719-815-55	DIODE 1S1555		R803	1-247-873-00	CARBON 56K 5%	1/6W
D816	8-719-911-19	DIODE 1SS119		R804	1-246-457-00	CARBON 220 5%	1/4W
D817	8-719-911-19	DIODE 1SS119		R805	1-249-441-11	CARBON 100K 5%	1/6W
D818	8-719-102-74	DIODE RD6.2E-N2		R806	1-247-873-00	CARBON 56K 5%	1/6W
<u>IC</u>				R807	1-247-873-00	CARBON 56K 5%	1/6W
IC801	8-759-240-52	IC UPD4052BP		R808	1-249-469-11	CARBON 100K 5%	1/4W
IC802	8-759-240-52	IC UPD4052BP		R809	1-246-543-00	CARBON 820K 5%	1/4W
IC803	8-759-900-09	IC SN74LS09N		R810	1-249-417-11	CARBON 1K 5%	1/6W
IC804	8-759-140-53	IC UPD4053BC		R811	1-246-457-00	CARBON 220 5%	1/4W
IC805	8-759-240-52	IC UPD4052BP		R812	1-249-425-11	CARBON 4.7K 5%	1/6W
IC806	8-759-900-05	IC SN74LS05N		R813	1-247-869-00	CARBON 39K 5%	1/6W
IC807	8-759-145-58	IC UPC4558C		R814	1-249-425-11	CARBON 4.7K 5%	1/6W
<u>COIL</u>				R815	1-249-429-11	CARBON 10K 5%	1/6W
L801	1-408-235-00	MICRO INDUCTOR 2.2MMH		R816	1-249-429-11	CARBON 10K 5%	1/6W
L802	1-408-417-00	MICRO INDUCTOR 47UH		R817	1-247-708-11	CARBON 470 5%	1/4W
<u>TRANSISTOR</u>				R818	1-247-713-11	CARBON 1K 5%	1/4W
Q802	8-729-117-54	TRANSISTOR 2SA1175		R819	1-247-713-11	CARBON 1K 5%	1/4W
Q803	8-729-117-54	TRANSISTOR 2SA1175		R820	1-215-491-00	CARBON 820K 5%	1/6W
Q804	8-729-117-54	TRANSISTOR 2SA1175		R821	1-247-869-00	CARBON 39K 5%	1/6W
Q805	8-729-178-54	TRANSISTOR 2SC2785		R822	1-246-457-00	CARBON 220 5%	1/4W
Q806	8-729-178-54	TRANSISTOR 2SC2785		R823	1-246-449-25	CARBON 100 5%	1/4W
Q807	8-729-178-54	TRANSISTOR 2SC2785		R824	1-247-705-11	CARBON 270 5%	1/4W
Q812	8-729-178-54	TRANSISTOR 2SC2785		R825	1-247-815-00	CARBON 220 5%	1/6W
Q813	8-729-178-54	TRANSISTOR 2SC2785		R827	1-247-893-00	CARBON 390K 5%	1/6W
Q814	8-729-178-54	TRANSISTOR 2SC2785		R828	1-247-893-00	CARBON 390K 5%	1/6W
				R829	1-246-507-00	CARBON 27K 5%	1/4W
				R830	1-246-507-00	CARBON 27K 5%	1/4W
				R831	1-246-507-00	CARBON 27K 5%	1/4W

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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R832	1-246-507-00	CARBON	27K 5% 1/4W	R891	1-246-445-00	CARBON	68 5% 1/4W
R833	1-246-507-00	CARBON	27K 5% 1/4W	R892	1-246-449-25	CARBON	100 5% 1/4W
R834	1-249-434-11	CARBON	27K 5% 1/6W	R893	1-246-457-00	CARBON	220 5% 1/4W
R835	1-247-893-00	CARBON	390K 5% 1/6W	R894	1-246-465-25	CARBON	470 5% 1/4W
R837	1-247-712-11	CARBON	820 5% 1/4W	R895	1-247-725-11	CARBON	10K 5% 1/4W
R838	1-247-895-00	CARBON	470K 5% 1/6W	R896	1-247-725-11	CARBON	10K 5% 1/4W
R839	1-246-537-00	CARBON	470K 5% 1/4W	R897	1-249-429-11	CARBON	10K 5% 1/6W
R840	1-247-104-00	CARBON	75 5% 1/4W	R898	1-249-429-11	CARBON	10K 5% 1/6W
R841	1-247-722-11	CARBON	5.6K 5% 1/4W	R899	1-246-457-00	CARBON	220 5% 1/4W
R842	1-247-722-11	CARBON	5.6K 5% 1/4W	R900	1-246-449-25	CARBON	100 5% 1/4W
R843	1-247-725-11	CARBON	10K 5% 1/4W	R901	1-247-713-11	CARBON	1K 5% 1/4W
R844	1-247-725-11	CARBON	10K 5% 1/4W	R902	1-247-713-11	CARBON	1K 5% 1/4W
R845	1-247-895-00	CARBON	470K 5% 1/6W	R903	1-247-699-11	CARBON	82 5% 1/4W
R846	1-247-104-00	CARBON	75 5% 1/4W	R904	1-247-699-11	CARBON	82 5% 1/4W
R847	1-246-507-00	CARBON	27K 5% 1/4W	R905	1-247-699-11	CARBON	82 5% 1/4W
R848	1-246-507-00	CARBON	27K 5% 1/4W	R906	1-246-457-00	CARBON	220 5% 1/4W
R849	1-247-713-11	CARBON	1K 5% 1/4W	R908	1-249-432-11	CARBON	18K 5% 1/6W
R850	1-247-713-11	CARBON	1K 5% 1/4W	R909	1-249-435-11	CARBON	33K 5% 1/6W
R851	1-247-725-11	CARBON	10K 5% 1/4W	R910	1-249-432-11	CARBON	18K 5% 1/6W
R852	1-249-433-11	CARBON	22K 5% 1/6W	R911	1-249-441-11	CARBON	100K 5% 1/6W
R853	1-247-707-11	CARBON	390 5% 1/4W	R912	1-249-441-11	CARBON	100K 5% 1/6W
R854	1-247-104-00	CARBON	75 5% 1/4W	R913	1-249-425-11	CARBON	4.7K 5% 1/6W
R855	1-247-721-11	CARBON	4.7K 5% 1/4W	R914	1-249-425-11	CARBON	4.7K 5% 1/6W
R856	1-247-713-11	CARBON	1K 5% 1/4W	R915	1-247-823-00	CARBON	470 5% 1/6W
R857	1-249-461-11	CARBON	18K 5% 1/4W	R916	1-247-823-00	CARBON	470 5% 1/6W
R858	1-249-440-11	CARBON	82K 5% 1/6W	R917	1-249-415-11	CARBON	680 5% 1/6W
R859	1-249-417-11	CARBON	1K 5% 1/6W	R918	1-249-419-11	CARBON	1.5K 5% 1/6W
R860	1-246-457-00	CARBON	220 5% 1/4W	R919	1-249-429-11	CARBON	10K 5% 1/6W
R861	1-247-721-11	CARBON	4.7K 5% 1/4W	R921	1-249-417-11	CARBON	1K 5% 1/6W
R862	1-249-417-11	CARBON	1K 5% 1/6W	R922	1-247-713-11	CARBON	1K 5% 1/4W
R863	1-249-419-11	CARBON	1.5K 5% 1/6W	R923	1-249-437-11	CARBON	47K 5% 1/6W
R864	1-246-457-00	CARBON	220 5% 1/4W	R924	1-249-437-11	CARBON	47K 5% 1/6W
R865	1-246-457-00	CARBON	220 5% 1/4W	R925	1-247-893-00	CARBON	390K 5% 1/6W
R866	1-249-419-11	CARBON	1.5K 5% 1/6W	R926	1-249-429-11	CARBON	10K 5% 1/6W
R867	1-249-419-11	CARBON	1.5K 5% 1/6W	R928	1-249-417-11	CARBON	1K 5% 1/6W
R868	1-249-417-11	CARBON	1K 5% 1/6W	R929	1-247-713-11	CARBON	1K 5% 1/4W
R869	1-246-457-00	CARBON	220 5% 1/4W	R930	1-247-713-11	CARBON	1K 5% 1/4W
R870	1-246-457-00	CARBON	220 5% 1/4W	R931	1-247-713-11	CARBON	1K 5% 1/4W
R872	1-246-457-00	CARBON	220 5% 1/4W	R932	1-249-441-11	CARBON	100K 5% 1/6W
R873	1-246-457-00	CARBON	220 5% 1/4W	R934	1-249-441-11	CARBON	100K 5% 1/6W
R874	1-247-823-00	CARBON	470 5% 1/6W	R938	1-247-719-11	CARBON	3.3K 5% 1/4W
R875	1-249-459-11	CARBON	12K 5% 1/4W	R939	1-249-420-11	CARBON	1.8K 5% 1/6W
R876	1-247-829-00	CARBON	820 5% 1/6W	R940	1-249-441-11	CARBON	100K 5% 1/6W
R879	1-247-823-00	CARBON	470 5% 1/6W	R941	1-247-713-11	CARBON	1K 5% 1/4W
R881	1-247-887-00	CARBON	220K 5% 1/6W	R942	1-247-104-00	CARBON	75 5% 1/4W
R882	1-247-887-00	CARBON	220K 5% 1/6W	R943	1-247-104-00	CARBON	75 5% 1/4W
R883	1-249-429-11	CARBON	10K 5% 1/6W	R944	1-247-104-00	CARBON	75 5% 1/4W
R884	1-249-429-11	CARBON	10K 5% 1/6W	R947	1-247-713-11	CARBON	1K 5% 1/4W
R885	1-249-433-11	CARBON	22K 5% 1/6W	R949	1-247-713-11	CARBON	1K 5% 1/4W
R886	1-249-462-11	CARBON	22K 5% 1/4W	R950	1-247-713-11	CARBON	1K 5% 1/4W
R887	1-249-433-11	CARBON	22K 5% 1/6W	R951	1-247-707-11	CARBON	390 5% 1/4W
R888	1-249-433-11	CARBON	22K 5% 1/6W	R952	1-247-707-11	CARBON	390 5% 1/4W
R889	1-249-417-11	CARBON	1K 5% 1/6W	R955	1-246-535-00	CARBON	390K 5% 1/4W



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
R956	1-247-719-11	CARBON 3.3K 5% 1/4W		C1121	1-102-112-00	CERAMIC 330PF 10% 50V	
R957	1-247-815-00	CARBON 220 5% 1/6W		C1122	1-123-369-00	ELECT 4.7MF 20% 25V	
R958	1-247-719-11	CARBON 3.3K 5% 1/4W		C1123	1-123-380-00	ELECT 1MF 20% 50V	
R959	1-247-815-00	CARBON 220 5% 1/6W		C1124	1-123-380-00	ELECT 1MF 20% 50V	
				C1125	1-123-332-00	ELECT 47MF 20% 16V	
		<u>VARIABLE RESISTOR</u>		C1126	1-123-380-00	ELECT 1MF 20% 50V	
RV801	1-228-848-00	RES, VAR, CARBON 10K		C1127	1-123-356-00	ELECT 10MF 20% 16V	
RV802	1-228-490-00	RES, VAR, CARBON 10K		C1128	1-106-176-00	MYLAR 0.0015MF 10% 100V	
		<u>SWITCH</u>		C1129	1-106-176-00	MYLAR 0.0015MF 10% 100V	
S801	1-553-651-00	SWITCH, SLIDE		C1130	1-123-380-00	ELECT 1MF 20% 50V	
S802	1-553-651-00	SWITCH, SLIDE		C1131	1-131-345-00	TANTALUM 0.47MF 10% 35V	
		<u>CONNECTOR</u>		C1132	1-123-356-00	ELECT 10MF 20% 16V	
U1	*1-566-059-11	PIN, CONNECTOR 7P		C1133	1-123-318-00	ELECT 33MF 20% 16V	
U2	*1-566-060-11	PIN, CONNECTOR 8P		C1134	1-130-301-00	FILM 0.015MF 5% 100V	
U3	*1-566-043-11	PIN, CONNECTOR 4P		C1135	1-123-323-00	ELECT 470MF 20% 16V	
U4	*1-566-056-11	PIN, CONNECTOR 4P		C1136	1-123-332-00	ELECT 47MF 20% 16V	
U5	*1-566-056-11	PIN, CONNECTOR 4P		C1137	1-123-332-00	ELECT 47MF 20% 16V	
U6	*1-566-057-11	PIN, CONNECTOR 5P		C1148	1-123-308-00	ELECT 220MF 20% 10V	
U7	*1-566-058-11	PIN, CONNECTOR 6P		C1149	1-123-381-00	ELECT 2.2MF 20% 50V	
U8	*1-566-058-11	PIN, CONNECTOR 6P		C1150	1-123-381-00	ELECT 2.2MF 20% 50V	
U9	*1-566-044-11	PIN, CONNECTOR 5P		C1151	1-123-369-00	ELECT 4.7MF 20% 25V	
U10	*1-566-054-11	PIN, CONNECTOR 2P		C1152	1-123-369-00	ELECT 4.7MF 20% 25V	
U11	*1-566-044-11	PIN, CONNECTOR 5P		C1153	1-102-074-00	CERAMIC 0.001MF 10% 50V	
U13	*1-566-054-11	PIN, CONNECTOR 2P		C1154	1-102-074-00	CERAMIC 0.001MF 10% 50V	
				C1155	1-102-074-00	CERAMIC 0.001MF 10% 50V	
*****				C1156	1-102-074-00	CERAMIC 0.001MF 10% 50V	
*A-1386-016-A X BOARD COMPLETE				C1157	1-123-323-00	ELECT 470MF 20% 16V	
*****				C1160	1-106-212-00	MYLAR 0.047MF 10% 100V	
		<u>CAPACITOR</u>		C1161	1-106-172-00	MYLAR 0.001MF 10% 100V	
C1101	1-123-318-00	ELECT 33MF 20% 16V		C1162	1-106-172-00	MYLAR 0.001MF 10% 100V	
C1102	1-123-356-00	ELECT 10MF 20% 16V		C1163	1-106-212-00	MYLAR 0.047MF 10% 100V	
C1103	1-123-318-00	ELECT 33MF 20% 16V		C1164	1-123-356-00	ELECT 10MF 20% 16V	
C1104	1-123-356-00	ELECT 10MF 20% 16V		C1165	1-123-380-00	ELECT 1MF 20% 50V	
C1105	1-102-074-00	CERAMIC 0.001MF 10% 50V		C1166	1-102-824-00	CERAMIC 470PF 5% 50V	
C1106	1-123-356-00	ELECT 10MF 20% 16V		C1167	1-123-380-00	ELECT 1MF 20% 50V	
C1107	1-123-356-00	ELECT 10MF 20% 16V		C1168	1-102-824-00	CERAMIC 470PF 5% 50V	
C1108	1-102-074-00	CERAMIC 0.001MF 10% 50V		C1169	1-123-356-00	ELECT 10MF 20% 16V	
C1109	1-106-196-00	MYLAR 0.01MF 10% 100V		C1170	1-123-345-00	ELECT 100MF 20% 35V	
C1110	1-123-380-00	ELECT 1MF 20% 50V		C1171	1-123-350-00	ELECT 2200MF 20% 35V	
C1111	1-106-212-00	MYLAR 0.047MF 10% 100V		C1172	1-123-346-00	ELECT 220MF 20% 35V	
C1112	1-106-196-00	MYLAR 0.01MF 10% 100V		C1174	1-106-208-00	MYLAR 0.033MF 10% 100V	
C1113	1-123-382-00	ELECT 3.3MF 20% 50V		C1175	1-123-349-00	ELECT 1000MF 20% 35V	
C1114	1-123-380-00	ELECT 1MF 20% 50V		C1176	1-123-359-00	ELECT 47MF 20% 35V	
C1115	1-130-275-00	FILM 0.0012MF 5% 100V		C1177	1-106-212-00	MYLAR 0.047MF 10% 100V	
C1116	1-123-380-00	ELECT 1MF 20% 50V		C1178	1-106-212-00	MYLAR 0.047MF 10% 100V	
C1117	1-123-380-00	ELECT 1MF 20% 50V		C1179	1-123-359-00	ELECT 47MF 20% 35V	
C1118	1-123-321-00	ELECT 220MF 20% 16V		C1180	1-123-349-00	ELECT 1000MF 20% 35V	
C1119	1-106-172-00	MYLAR 0.001MF 10% 100V		C1181	1-106-208-00	MYLAR 0.033MF 10% 100V	
C1120	1-106-188-00	MYLAR 0.0047MF 10% 100V		C1183	1-123-346-00	ELECT 220MF 20% 35V	
				C1184	1-123-356-00	ELECT 10MF 20% 16V	
				C1185	1-123-380-00	ELECT 1MF 20% 50V	
				C1186	1-123-380-00	ELECT 1MF 20% 50V	
				C1187	1-123-380-00	ELECT 1MF 20% 50V	

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Ref.No.	Part No.	Description	Remark			Ref.No.	Part No.	Description	Remark		
R1132	1-249-415-11	CARBON	680	5%	1/6W	R1188	1-249-429-11	CARBON	10K	5%	1/6W
R1133	1-249-429-11	CARBON	10K	5%	1/6W	R1189	1-249-429-11	CARBON	10K	5%	1/6W
R1134	1-249-429-11	CARBON	10K	5%	1/6W	R1190	1-247-811-00	CARBON	150	5%	1/6W
R1135	1-249-423-11	CARBON	3.3K	5%	1/6W	R1191	1-247-823-00	CARBON	470	5%	1/6W
R1136	1-247-803-00	CARBON	68	5%	1/6W	R1192	1-249-429-11	CARBON	10K	5%	1/6W
R1137	1-249-419-11	CARBON	1.5K	5%	1/6W	R1193	1-249-429-11	CARBON	10K	5%	1/6W
R1138	1-247-819-00	CARBON	330	5%	1/6W	R1194	1-249-429-11	CARBON	10K	5%	1/6W
R1139	1-249-432-11	CARBON	18K	5%	1/6W	R1195	1-249-441-11	CARBON	100K	5%	1/6W
R1140	1-247-851-00	CARBON	6.8K	5%	1/6W	R1196	1-249-441-11	CARBON	100K	5%	1/6W
R1141	1-249-437-11	CARBON	47K	5%	1/6W	R1197	1-249-429-11	CARBON	10K	5%	1/6W
R1142	1-249-437-11	CARBON	47K	5%	1/6W	R1199	1-249-441-11	CARBON	100K	5%	1/6W
R1143	1-249-437-11	CARBON	47K	5%	1/6W	R1200	1-249-441-11	CARBON	100K	5%	1/6W
R1144	1-249-423-11	CARBON	3.3K	5%	1/6W	R1203	1-249-417-11	CARBON	1K	5%	1/6W
R1145	1-247-719-11	CARBON	3.3K	5%	1/4W	R1204	1-249-417-11	CARBON	1K	5%	1/6W
R1146	1-247-851-00	CARBON	6.8K	5%	1/6W	R1205	1-249-417-11	CARBON	1K	5%	1/6W
R1147	1-249-432-11	CARBON	18K	5%	1/6W	R1206	1-249-417-11	CARBON	1K	5%	1/6W
R1148	1-249-425-11	CARBON	4.7K	5%	1/6W	R1207	1-249-417-11	CARBON	1K	5%	1/6W
R1149	1-249-433-11	CARBON	22K	5%	1/6W	R1208	1-249-434-11	CARBON	27K	5%	1/6W
R1150	1-215-486-00	METAL	510K	1%	1/6W	R1210	1-249-425-11	CARBON	4.7K	5%	1/6W
R1151	1-214-785-00	METAL	220K	1%	1/4W	R1211	1-249-441-11	CARBON	100K	5%	1/6W
R1152	1-215-469-00	METAL	100K	1%	1/6W	R1212	1-249-425-11	CARBON	4.7K	5%	1/6W
R1153	1-214-777-00	METAL	100K	1%	1/4W	R1213	1-249-417-11	CARBON	1K	5%	1/6W
R1154	1-214-785-00	METAL	220K	1%	1/4W	R1214	1-249-441-11	CARBON	100K	5%	1/6W
R1155	1-215-493-00	METAL	1M	1%	1/6W	R1215	1-247-881-00	CARBON	120K	5%	1/6W
R1156	1-215-493-00	METAL	1M	1%	1/6W	R1216	1-247-893-00	CARBON	390K	5%	1/6W
R1157	1-246-529-00	CARBON	220K	5%	1/4W	R1217	1-211-427-00	CARBON	100	5%	1/8W F
R1158	1-249-441-11	CARBON	100K	5%	1/6W	R1218	1-249-415-11	CARBON	680	5%	1/6W
R1159	1-247-886-00	CARBON	200K	5%	1/6W	R1220	1-247-859-00	CARBON	15K	5%	1/6W
R1160	1-246-457-00	CARBON	220	5%	1/4W	R1221	1-249-432-11	CARBON	18K	5%	1/6W
R1161	1-249-433-11	CARBON	22K	5%	1/6W	R1222	1-211-401-00	CARBON	4.7	5%	1/8W F
R1162	1-249-425-11	CARBON	4.7K	5%	1/6W	R1223	1-211-401-00	CARBON	4.7	5%	1/8W F
R1163	1-247-851-00	CARBON	6.8K	5%	1/6W	R1224	1-249-417-11	CARBON	1K	5%	1/6W
R1164	1-249-432-11	CARBON	18K	5%	1/6W	R1225	1-249-461-11	CARBON	18K	5%	1/4W
R1165	1-247-848-00	CARBON	5.1K	5%	1/6W	R1226	1-247-859-00	CARBON	15K	5%	1/6W
R1166	1-249-419-11	CARBON	1.5K	5%	1/6W	R1227	1-249-417-11	CARBON	1K	5%	1/6W
R1167	1-247-833-00	CARBON	1.2K	5%	1/6W	R1229	1-249-415-11	CARBON	680	5%	1/6W
R1168	1-249-425-11	CARBON	4.7K	5%	1/6W	R1230	1-249-441-11	CARBON	100K	5%	1/6W
R1170	1-247-849-00	CARBON	5.6K	5%	1/6W	R1231	1-249-417-11	CARBON	1K	5%	1/6W
R1171	1-249-390-11	CARBON	5.6	5%	1/8W F	R1232	1-249-417-11	CARBON	1K	5%	1/6W
R1172	1-247-823-00	CARBON	470	5%	1/6W	R1233	1-249-417-11	CARBON	1K	5%	1/6W
R1173	1-249-422-11	CARBON	2.7K	5%	1/6W	R1234	1-249-417-11	CARBON	1K	5%	1/6W
R1174	1-247-829-00	CARBON	820	5%	1/6W	R1237	1-249-441-11	CARBON	100K	5%	1/6W
R1175	1-249-421-11	CARBON	2.2K	5%	1/6W	R1241	1-249-429-11	CARBON	10K	5%	1/6W
R1176	1-247-815-00	CARBON	220	5%	1/6W	R1243	1-247-862-00	CARBON	20K	5%	1/6W
R1177	1-249-433-11	CARBON	22K	5%	1/6W	R1245	1-249-435-11	CARBON	33K	5%	1/6W
R1180	1-249-429-11	CARBON	10K	5%	1/6W	R1246	1-249-423-11	CARBON	3.3K	5%	1/6W
R1181	1-249-425-11	CARBON	4.7K	5%	1/6W	R1247	1-247-885-00	CARBON	180K	5%	1/6W
R1182	1-247-838-00	CARBON	2K	5%	1/6W	R1248	1-247-885-00	CARBON	180K	5%	1/6W
R1183	1-247-838-00	CARBON	2K	5%	1/6W	R1249	1-249-425-11	CARBON	4.7K	5%	1/6W
R1184	1-247-829-00	CARBON	820	5%	1/6W	R1250	1-249-425-11	CARBON	4.7K	5%	1/6W
R1185	1-247-829-00	CARBON	820	5%	1/6W	R1251	1-249-433-11	CARBON	22K	5%	1/6W
R1186	1-247-838-00	CARBON	2K	5%	1/6W	R1252	1-249-423-11	CARBON	3.3K	5%	1/6W
R1187	1-249-441-11	CARBON	100K	5%	1/6W	R1253	1-249-434-11	CARBON	27K	5%	1/6W

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Ref.No.	Part No.	Description	Remark
R1254	1-249-425-11	CARBON 4.7K 5% 1/6W	
R1255	1-249-425-11	CARBON 4.7K 5% 1/6W	
R1256	1-249-423-11	CARBON 3.3K 5% 1/6W	
R1257	1-247-811-00	CARBON 150 5% 1/6W	
R1258	1-249-423-11	CARBON 3.3K 5% 1/6W	
R1259	1-247-869-00	CARBON 39K 5% 1/6W	
R1260	1-247-893-00	CARBON 390K 5% 1/6W	
R1261	1-247-885-00	CARBON 180K 5% 1/6W	
R1262	1-247-844-00	CARBON 3.6K 5% 1/6W	
R1263	1-247-893-00	CARBON 390K 5% 1/6W	
R1288	1-247-848-00	CARBON 5.1K 5% 1/6W	
R1289	1-247-885-00	CARBON 180K 5% 1/6W	
R1290	1-247-811-00	CARBON 150 5% 1/6W	
R1291	1-249-423-11	CARBON 3.3K 5% 1/6W	
R1292	1-249-417-11	CARBON 1K 5% 1/6W	
R1293	1-247-844-00	CARBON 3.6K 5% 1/6W	
R1294	1-247-887-00	CARBON 220K 5% 1/6W	
R1295	1-215-421-00	METAL 1K 1% 1/6W	

VARIABLE RESISTOR

RV1101	1-228-724-00	RES, ADJ, CERAMIC CARBON 10K
RV1102	1-228-723-00	RES, ADJ, CERAMIC CARBON 4.7K
RV1103	1-228-720-00	RES, ADJ, CERAMIC CARBON 1K
RV1104	1-228-722-00	RES, ADJ, CERAMIC CARBON 3.3K
RV1106	1-228-724-00	RES, ADJ, CERAMIC CARBON 10K
RV1107	1-228-721-00	RES, ADJ, CERAMIC CARBON 2.2K
RV1108	1-228-721-00	RES, ADJ, CERAMIC CARBON 2.2K
RV1109	1-228-725-00	RES, ADJ, CERAMIC CARBON 22K
RV1110	1-228-724-00	RES, ADJ, CERAMIC CARBON 10K

TRANSFORMER

T1101	1-235-386-11	FILTER, BAND PASS
T1102	1-235-387-11	FILTER, BAND PASS
T1103	1-235-400-11	FILTER, LOW PASS (L.P.F)
T1104	1-231-726-00	FILTER, LOWPASS
T1105	1-231-726-00	FILTER, LOWPASS

CONNECTOR

X1	*1-566-054-11	PIN, CONNECTOR 2P
X2	*1-566-055-11	PIN, CONNECTOR 3P
X3	*1-508-765-00	3P PLUG (M)
X4	*1-566-056-11	PIN, CONNECTOR 4P
X5	*1-566-058-11	PIN, CONNECTOR 6P
X6	*1-566-059-11	PIN, CONNECTOR 7P
X7	*1-566-056-11	PIN, CONNECTOR 4P

*1-614-651-11 XA BOARD

*4-309-378-00 SPACER

Ref.No.	Part No.	Description	Remark
CAPACITOR			
C1701	1-102-116-00	CERAMIC 680PF 10% 50V	
C1702	1-102-117-00	CERAMIC 820PF 10% 50V	
C1703	1-123-356-00	ELECT 10MF 20% 16V	
C1704	1-123-356-00	ELECT 10MF 20% 16V	

DIODE

D1701	8-719-911-19	DIODE 1SS119
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COIL

L1701	1-408-242-00	MICRO INDUCTOR 10MMH
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TRANSISTOR

Q1701	8-729-178-54	TRANSISTOR 2SC2785
Q1702	8-729-117-54	TRANSISTOR 2SA1175

RESISTOR

R1701	1-249-421-11	CARBON 2.2K 5% 1/6W
R1702	1-249-429-11	CARBON 10K 5% 1/6W
R1703	1-249-425-11	CARBON 4.7K 5% 1/6W

CONNECTOR

XA1	*1-566-056-11	PIN, CONNECTOR 4P
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*1-613-413-11 Z BOARD

JACK

J001	1-507-806-00	JACK
J002	1-507-940-21	JACK, AV
J003	1-507-940-21	JACK, AV

RESISTOR

R001	1-247-740-11	CARBON 120 5% 1/2W
R002	1-247-740-11	CARBON 120 5% 1/2W

CONNECTOR

Z1	*1-566-058-11	PIN, CONNECTOR 6P
Z2	*1-566-057-11	PIN, CONNECTOR 5P
Z3	*1-566-056-11	PIN, CONNECTOR 4P
Z4	*1-566-056-11	PIN, CONNECTOR 4P

*1-615-280-11 V BOARD

CAPACITOR

C1501	1-162-114-00	CERAMIC 0.0047MF 2KV
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V


Ref.No.	Part No.	Description	Remark
<u>DIODE</u>			
D1501	8-719-300-65	DIODE ES1F	
<u>RESISTOR</u>			
R1501	1-213-157-00	METAL OXIDE 15K 5% 1W F	
R1502	1-202-838-00	SOLID 100K 1/2W	
R1503	1-202-848-00	SOLID 680K 1/2W	
<u>VARIABLE RESISTOR</u>			
RV1501A	1-226-114-11	RES, ADJ, METAL GLAZE 2.2M	
<u>CONNECTOR</u>			
V1	*1-508-765-00	3P PLUG (M)	


MISCELLANEOUS

A	1-417-125-11	SELECTOR, ANTENNA
A	1-451-256-12	DEFLECTION YOKE (SY-153)
	1-452-032-00	MAGNET, DISK; 10MM Ø
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø
	1-452-277-00	MAGNET, BMC
*	1-557-009-00	CABLE, P-P
A	1-557-269-11	CORD, POWER
L906	A 1-426-224-12	COIL, DEMAGNETIZATION
R622	A 1-217-627-11	RES, CEMENT WIREWOUND 1.2 5% 15W
RV901A	1-230-786-12	RESISTER ASSY, HIGH-VOLTAGE
T503	A 1-439-351-12	TRANSFORMER ASSY, FLYBACK
V901	A 8-736-952-05	CRT (A51JKQ10X)

ACCESSORIES AND PACKING MATERIALS

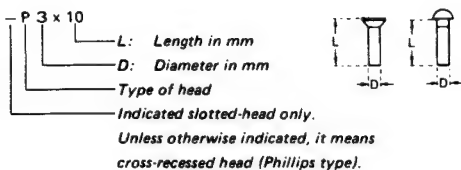
Part.No.	Description	Remark
A-1470-681-A	COMMANDER ASSY (RM-724)	
1-513-379-00	CONVERTER (EAC-25)	
*4-374-242-01	CUSHION (UPPER) (ASSY)	
*4-374-243-01	CUSHION (LOWER) (ASSY)	
*4-374-248-01	SPACER	
*4-374-253-01	SUPPORT	
4-374-320-01	LABEL, INSTRUCTION, PRESET	
*4-377-015-01	BAG, PROTECTION	
*4-383-718-01	INDIVIDUAL CARTON	
4-482-354-31	MANUAL, INSTRUCTION	

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

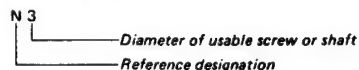
Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

KV-20XBRII

RM-724/APM-X4

SONY

SERVICE MANUAL

Canadian Model

Chassis No. SCC-607D-A

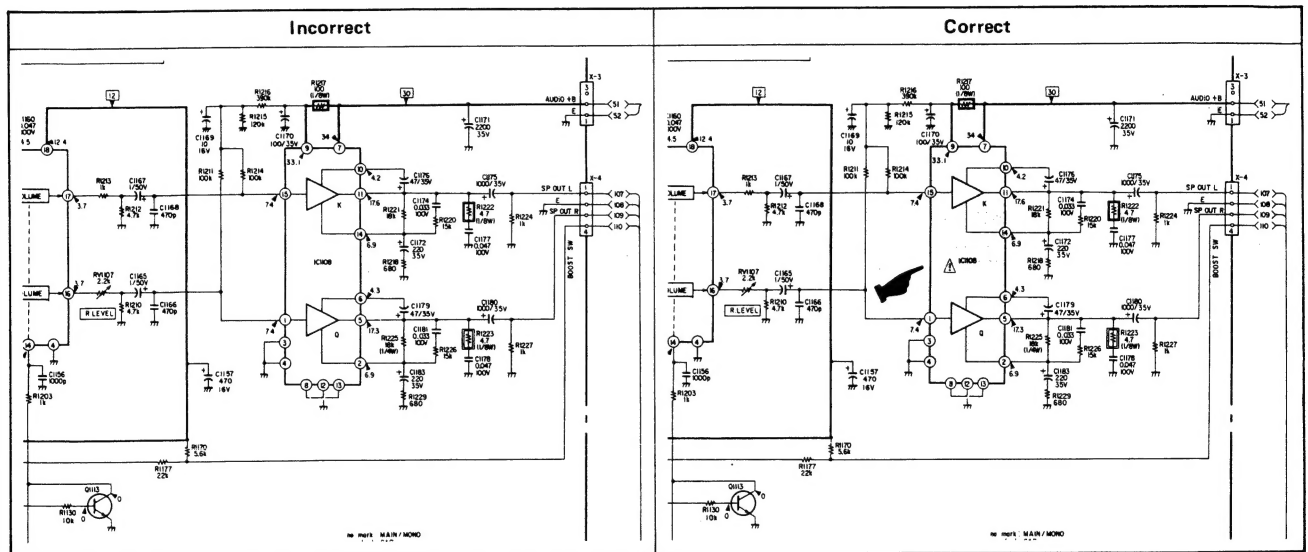
No. 1

CORRECTION

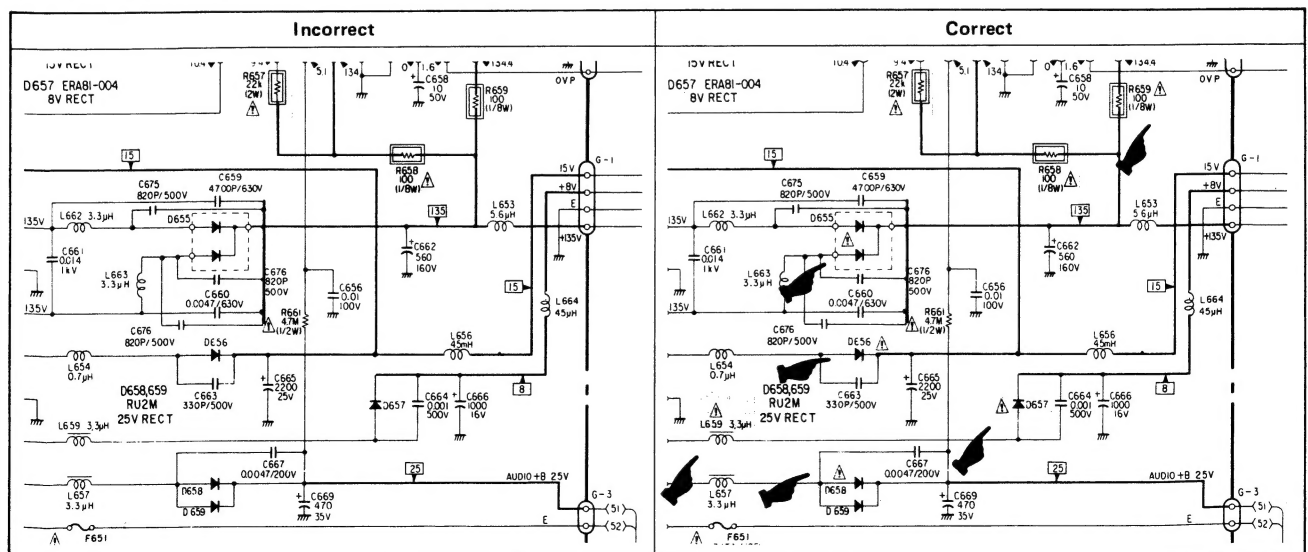
Correct the service manual as shown below.
File this correction with the service manual.

 : Corrected Portion

5-3. SCHEMATIC DIAGRAMS : P43 (X Board)

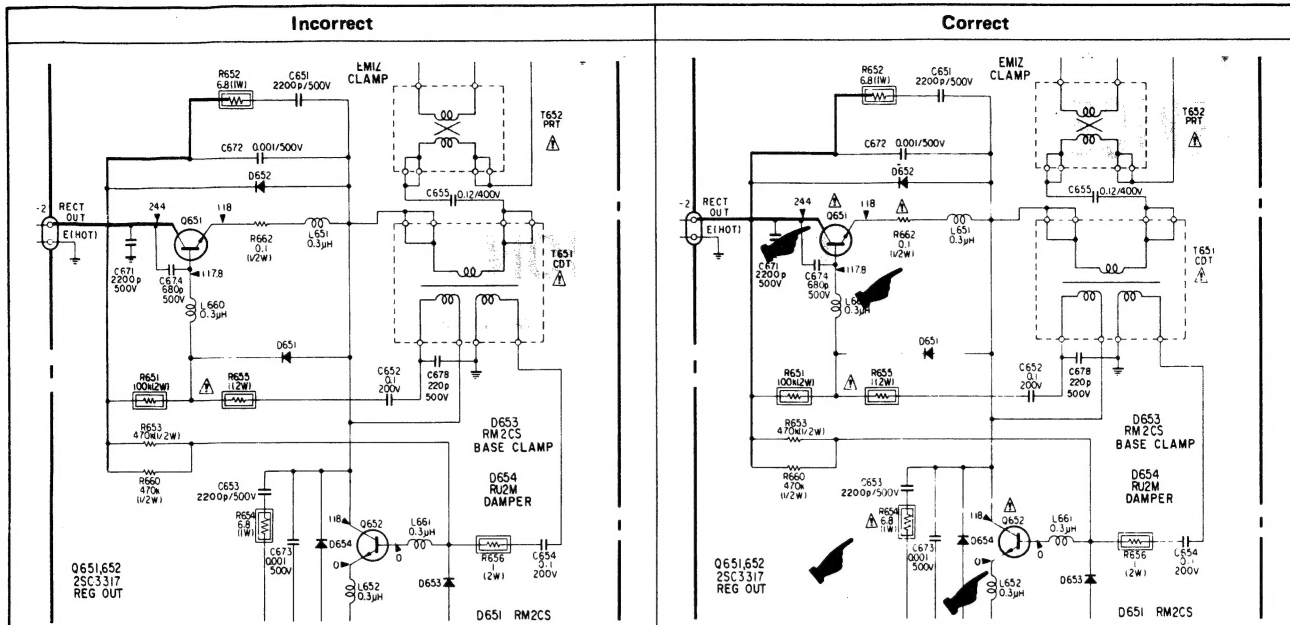


5-3. SCHEMATIC DIAGRAMS : P49 (GB Board)

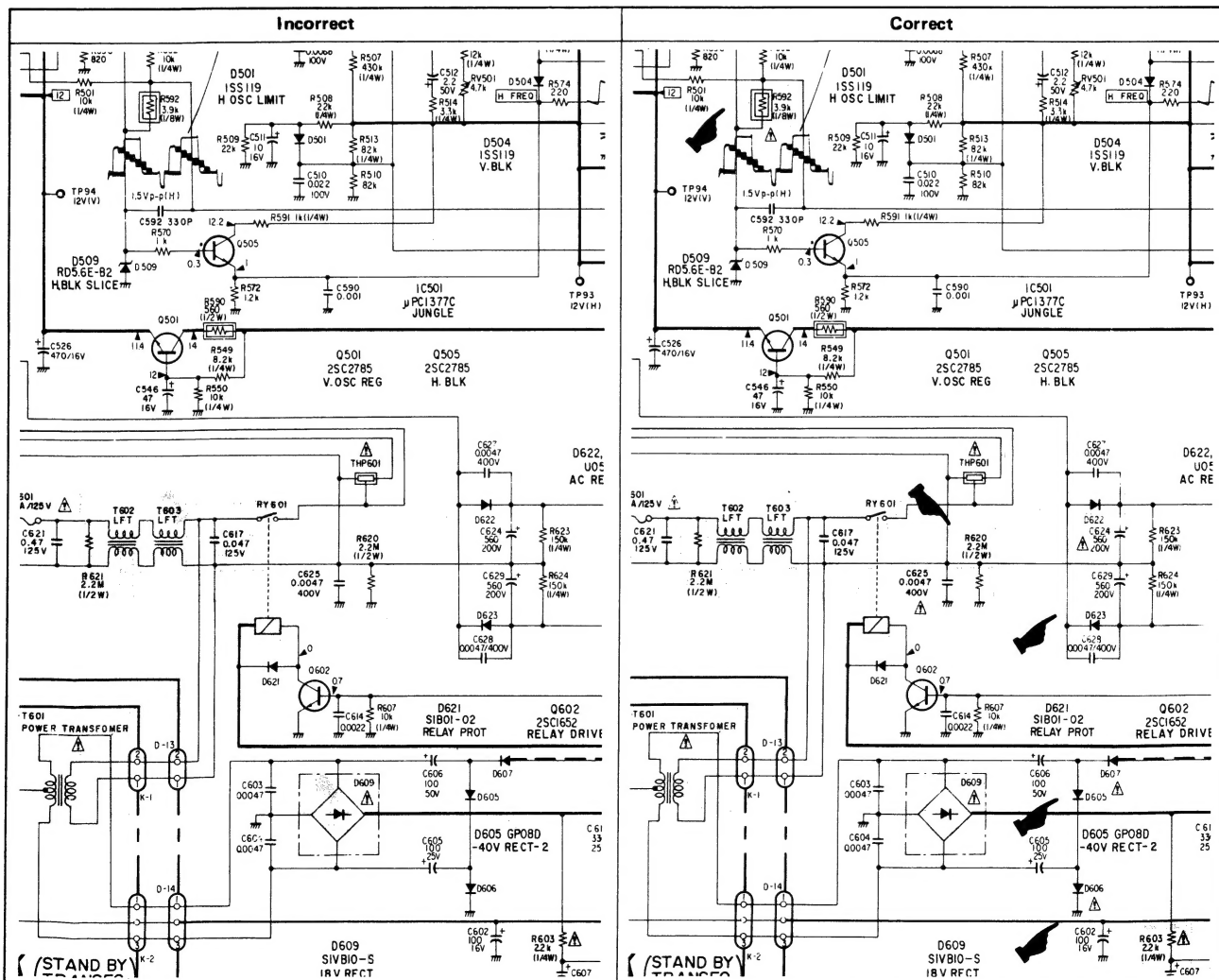


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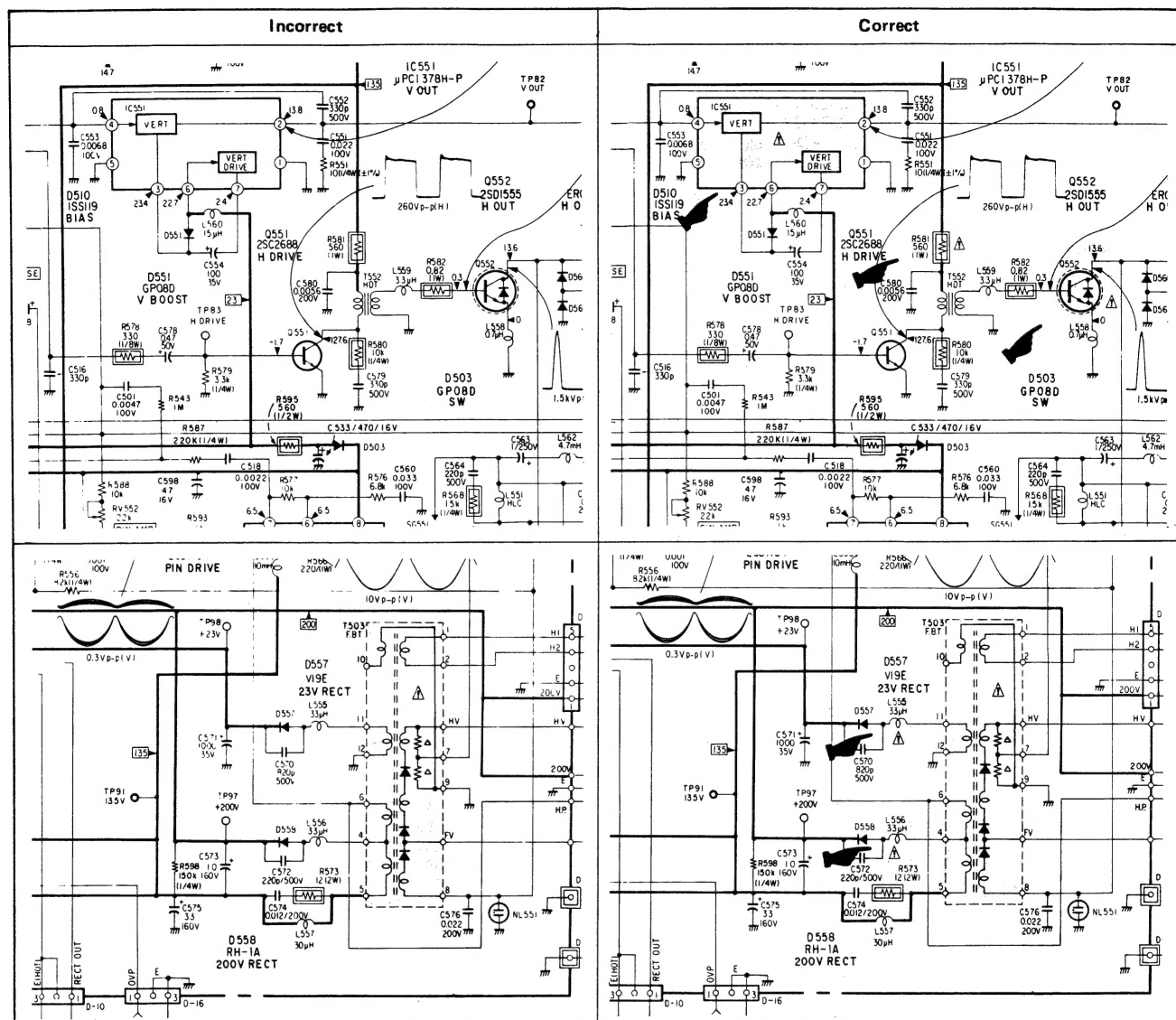
5-3. SCHEMATIC DIAGRAMS : P49 (GA Board)



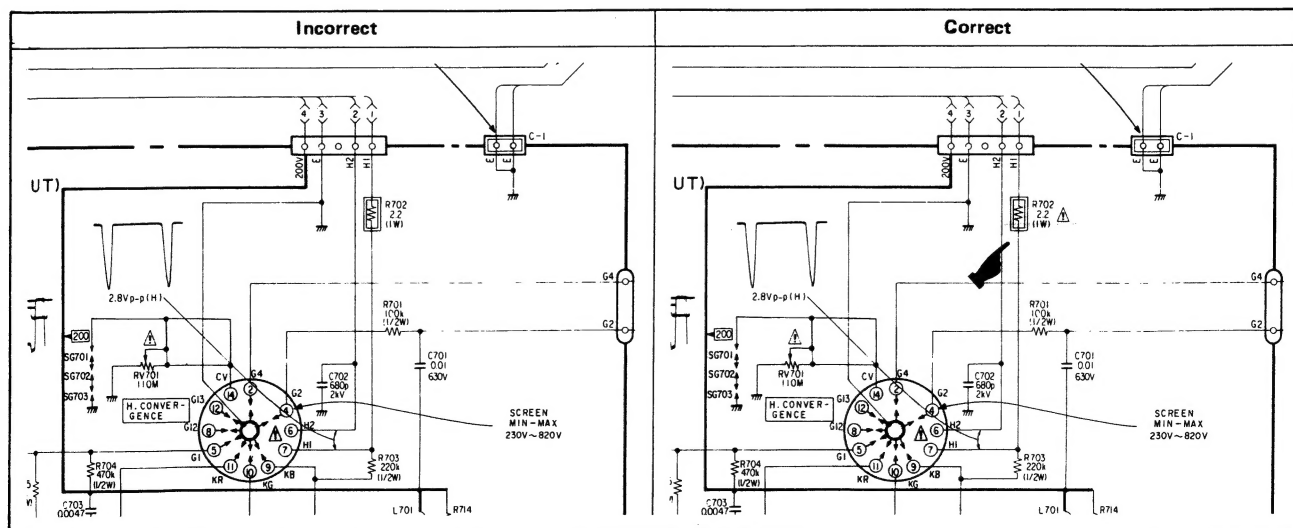
5-3. SCHEMATIC DIAGRAMS : P50 (D Board)



5-3. SCHEMATIC DIAGRAMS : P50, 51 (D Board)



5-3. SCHEMATIC DIAGRAMS : P52 (C Board)



7. ELECTRICAL PARTS LIST

GA BOARD

Incorrect							Correct						
Q651	8-729-902-10	TRANSISTOR	2SC3317-S				Q651	△8-729-902-10	TRANSISTOR	2SC3317-S			
Q652	8-729-902-10	TRANSISTOR	2SC3317-S				Q652	△8-729-902-10	TRANSISTOR	2SC3317-S			
R654	1-212-370-00	METAL OXIDE	6.8	5%	1W	F	R654	△1-212-370-61	METAL OXIDE	6.8	5%	1W	F
R662	1-207-451-00	WIREWOUND	0.1	10%	1/2W		R662	△1-207-451-11	WIREWOUND	0.1	10%	1/2W	

GB BOARD

Incorrect							Correct						
D655	8-719-300-09	DIODE	CTU-24S				D655	△8-719-300-09	DIODE	CTU-24S			
D656	8-719-903-06	DIODE	ERC84-009				D656	△8-719-903-06	DIODE	ERC84-009			
D657	8-719-981-01	DIODE	ERA81-004				D657	△8-719-981-01	DIODE	ERA81-004			
D658	8-719-302-00	DIODE	RJ-2M				D658	△8-719-302-00	DIODE	RJ-2M			
D659	8-719-302-00	DIODE	RJ-2M				D659	△8-719-302-00	DIODE	RJ-2M			
L659	1-407-687-00	MICRO INDUCTOR	3.3UH				L659	△1-407-687-11	MICRO INDUCTOR	3.3UH			
R659	1-247-033-11	CARBON	100	5%	1/8W	F	R659	△1-247-033-11	CARBON	100	5%	1/8W	F

C BOARD

Incorrect							Correct						
R702	1-212-364-00	METAL OXIDE	2.2	5%	1W	F	R702	△1-212-364-61	METAL OXIDE	2.2	5%	1W	F

D BOARD

Incorrect							Correct						
C624	1-125-457-11	ELECT(BLOCK)	560MF	20%	200V		C624	△1-125-457-11	ELECT(BLOCK)	560MF	20%	200V	
C625	1-161-953-00	CERAMIC	0.0047MF	20%	400V		C625	△1-161-953-51	CERAMIC	0.0047MF	20%	120V	
C629	1-125-457-11	ELECT(BLOCK)	560MF	20%	200V		C629	△1-125-457-11	ELECT(BLOCK)	560MF	20%	200V	
D605	8-719-911-55	DIODE	U05G				D605	△8-719-908-03	DIODE	GP08D			
D606	8-719-911-19	DIODE	1SS119				D606	△8-719-911-19	DIODE	1SS119			
D607	8-719-911-55	DIODE	U05G				D607	△8-719-908-03	DIODE	GP08D			
D622	8-719-911-55	DIODE	U05G				D622	△8-719-911-54	DIODE	U05G			
D623	8-719-911-55	DIODE	U05G				D623	△8-719-911-54	DIODE	U05G			
IC551	8-759-105-82	IC	UPC1378H-P				IC551	△8-759-105-82	IC	UPC1378H-P			
L555	1-407-699-00	MICRO INDUCTOR	33UH				L555	△1-407-699-11	MICRO INDUCTOR	33UH			
L556	1-407-699-00	MICRO INDUCTOR	33UH				L556	△1-407-699-11	MICRO INDUCTOR	33UH			
Q552	8-729-203-80	TRANSISTOR	2SD1555-LB-S1				Q552	△8-729-203-80	TRANSISTOR	2SD1555-LB-S1			
R581	1-213-140-00	METAL OXIDE	560	5%	1W	F	R581	△1-213-140-61	METAL OXIDE	560	5%	1W	F
R592	1-249-424-11	CARBON	3.9K	5%	1/8W		R592	△1-247-586-11	CARBON	3.9K	5%	1/8W	
R620	1-202-723-00	SOLID	2.2M	10%	1/2W		R620	△1-202-723-51	SOLID	2.2M	10%	1/2W	

X BOARD

Incorrect							Correct						
IC1108	8-749-943-52	IC	STK-4352				IC1108	△8-749-943-52	IC	STK-4352			